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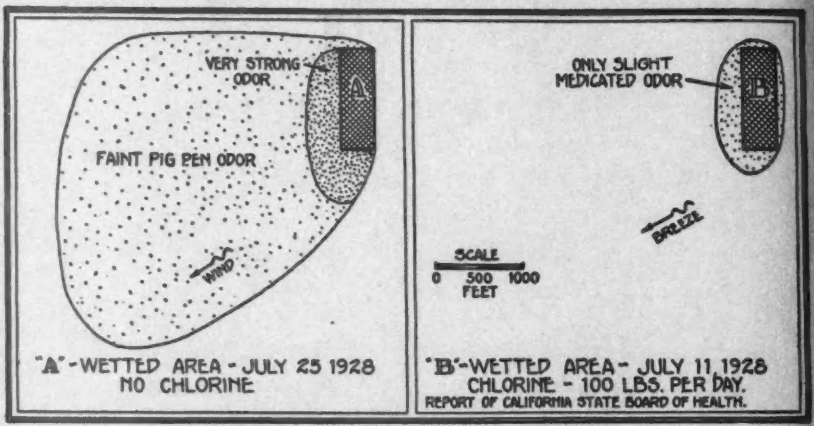

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CANADIAN PUBLIC HEALTH JOURNAL

VOL. XX August, 1929 No. 8

—Presidential Address— Some Thoughts on the Organization and Progress of Public Health in Canada*

NORMAN MACL. HARRIS, M.B.

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IT is not my purpose to inflict upon you an address dealing with any abstruse problem of a scientific nature in relation to public health, or a critical discussion of any subject such as the technical members of this Association alone might welcome; I felt rather that it would be more profitable to select some topic which would prove of interest to the laity at large, either already members of the association or having related interests outside of the boundaries of the association, who might be anxious to round out their knowledge of the full significance of the status of public health in Canada in regard to its past and present.

As in all civilized countries, public health measures have had their periods of infancy, adolescence and full maturity; so, in this respect our own country has passed through the first two stages and, I think without exaggeration, is now well advanced in the last period of progress.

Before the rise of bacteriology, such public health measures as were attempted in this country rested upon very little scientific basis, being largely empirical. The studies of the illustrious Pasteur, whom we look upon as the father and founder of bacteriological science, together with the wonderfully striking labours of Koch, not only clearly demonstrated for all time the relationship of certain bacteria to disease pro-

**Presented, by permission of the Deputy Minister, Department of Pensions and National Health, Ottawa, to the Eighteenth Annual Meeting, Canadian Public Health Association, Montreal, June, 1929.*

cesses, but defined ways in which these disorganizers of human health are transmitted from original outbreaks to secondary ones. The difficulties in elucidating the paths of infection were at first enormous, but by collaborative studies of these two pioneers, their pupils, and of the host of independent investigators since, such channels have been clearly demonstrated in the vast majority of instances of epidemic diseases and of minor infections as well.

In the earlier days of the science of bacteriology, it was mistakenly thought that pathogenic bacteria had their habitats widely distributed in nature; later on, as the bounds of study were enlarged, it was discovered that for the most part disease-producing bacteria were actually parasites upon their hosts, either man or lower animals, and that their passage from host to host was either direct or indirect, and within a relatively short period, and that they were unable to maintain themselves under ordinary prevailing conditions outside of the bodies of the hosts for any great length of time.

The accumulation of such facts has rendered campaigns against infectious processes much more intelligible and successful along the lines of either control, suppression, or eradication. To-day, although the idea still lingers very largely amongst the laity, and even, I believe, amongst some of the profession that decaying refuse and dirt are prolific sources for many epidemic diseases, we know that nothing could be more erroneous, the truth being that such diseases as influenza, pneumonia, scarlet fever, measles and smallpox are spread, practically in all instances, *directly* from the sick to the well. In other cases, although this direct method may also be active, we know that in larger measures such diseases as cholera, typhoid fever, meat-poisoning (so-called ptomaine poisoning) and botulism are usually spread *indirectly* through the fouling of water supplies, milk supplies, raw foods, and, particularly in the case of meat-poisoning and botulism, through imperfectly canned meat, fish, and vegetables. Then, too, such diseases as malaria, yellow fever, dengue, Rocky Mountain fever and typhus fever, are also *indirectly* contracted through the agency of a variety of members of the insect world. It is with the knowledge of such broadly stated facts, at times ascertained under difficult and trying circumstances, that the successful application of public health measures has now led to the control of many diseases to which man is heir.

Likewise, in the realm of diseases of a non-infectious nature, medical science has not failed to mark advances in the field of public health, if we take into consideration the elucidation of the causes and treatment of such obscure diseases as goitre, diabetes and the so-called deficiency diseases, such as scurvy, beri-beri and pellagra. These conditions, widespread in some communities, have been brought under control through discoveries in special treatment by iodine, insulin and the vitamins, respectively.

EARLY LEGISLATION

With such a rather brief presentation of the fundamental factors in relation to the control of public health, I will now pass on to the proper subject of my discourse. In the early days in Canada, during the French régime, we have witnessed the heroic and unselfish endeavours of the members of certain of the religious bodies* coming from France to Canada, who took upon themselves the duties of the nursing of the sick during times of epidemics and endeavouring to combat the spread of disease, according to the lights of their times.

From time to time physicians, either military or attached to the official staffs of the governors, played their parts in the early days of colonization, both during the French and, later on, under the British régime. There were, however, no organized attempts on the parts of the governments of the day to regulate matters concerned with what we ordinarily recognize now under the term "public health." The settled parts of the country were from time to time swept by scourges of smallpox, typhus and typhoid fevers, and cholera, not to mention other infectious diseases such as measles, scarlet fever and diphtheria. True, at certain periods, local quarantine measures and local boards of health were instituted to limit the spread of such severe visitations, but, lacking a real understanding of the causes of the diseases, the efforts were woefully inadequate to control them and to assure at the same time safety to the public.

Some one has said that modern health measures of control may be said to have begun with the famous Broad Street pump incident during the cholera outbreak in London in 1849, where orders were issued that the use of the pump be forbidden, and in consequence the disease quickly subsided. This incident led to the promulgation of the first legislation in Britain for the control of water supplies in 1852, under the title "The Metropolis Water Act." With the passing by the British Parliament in 1875 of the Public Health Act, the foundations were laid for present day practice in all British dominions, and in due course the Canadian provinces, using this Act as a model, began setting up their own legal machinery to conserve public health, recasting it when necessary, to keep pace with advancement in medical knowledge, until to-day we in Canada need not to feel ashamed of the manner in which public health is looked after within our boundaries.

To recapitulate in detail here the history of the development of public health in each of our provinces would be too time-consuming at this moment, but I will briefly indicate by dates the periods at which each of the provinces officially passed modern health acts and created actively functioning boards of health:—

**The activities of these various religious orders have been, as you know, very fully presented in that most interesting work entitled "Four Centuries of Medical History in Canada," by Dr. J. J. Heagerty, to which I would direct the serious attention of those engaged in public health work who have not as yet perused the pages of this book relative to, in part, the early attempts to conserve public health in Canada.*

Ontario	*in 1882-83*
Quebec	" *1886-87—1915-22*
Manitoba	" *1891*
New Brunswick	" *1876*
Nova Scotia	" *1885-93*
Alberta	" *1907*
Saskatchewan	" *1907*
British Columbia	" *1869-93*
Prince Edward Island	" *1908-27*

It is to be observed in passing that in the interval since the original dates assigned to the promulgation of health acts, all the provinces have been continuously enlarging the scope of their activities by either passing new acts or adding to the originals. This is particularly true of the Province of Quebec, which, so recently as 1922, put upon the statute books the most up-to-date machinery for ensuring to its citizens the utmost measures looking forward to conservation of their health, probably the most notable measure being the provision for twenty-five health units or county health centres, nine of which are now in operation and three more about to be organized.

Nearly all the provinces have control of the organization of local boards of health, and administer departments dealing with communicable diseases, vital statistics, medical inspection of school children, diagnostic laboratories, industrial hygiene, child welfare, pre-natal and post-natal care of women, public health nursing activities, travelling clinics, care of milk and water supplies, sewage disposal, tourist camps and the like. This represents an untold amount of activities under professional initiative and control, and assures that the latest results of scientific discoveries are promptly applied to the conservation of the health of Canada's citizens.

THE FEDERAL DEPARTMENT OF NATIONAL HEALTH

In addition to the internal organization for health as exemplified by the activities of the several provinces, I would now direct your attention to a more recent development in Canada looking to the protection of its citizens from external dangers, and one which I find is the occasion of misunderstanding or ignorance among many, some of whom should be better informed, namely, the organization by the Dominion government of a department of health. Doubtless the uninformed wonder at the necessity for such control on the part of the federal authorities when the provinces are so well organized to cope with troubles inimical to public health.

If we were a self-contained people and were cut off from the necessity of having contact with our fellow men in the world at large, there would, of course, be no necessity for the Dominion government to go to the trouble and expense of maintaining a department of health. But we are not a hermit nation, and trade and commerce and intercourse with

the nations of the world are part and parcel of our daily existence, bordered as we are by two great oceans and by a national group all along our thousands of miles of southern boundary. Therefore, such conditions necessitate a central control of the several health problems wrapped up in this situation, because it is very obvious that unified control would be an impossibility if left to the individual provinces. The health of all those seeking entry to our country must be scrupulously checked: steamships conveying the fruits of trade from foreign shores at times may bring, as in the past they have brought, dread scourges, so that the health of the crews and the exclusion of ship vermin, bearing possible disease, must be carefully supervised. Food supplies likewise must be investigated, so that none but healthful material may be traded in. Sick mariners of all nations must be provided with proper and humanitarian care. And finally, living up to recognized international health agreements and demands, our own ships and crews and commerce must receive the same careful consideration and oversight that we demand of the strangers who knock at our gates. In what better manner, I ask you, can we carry out such obligations, both to our own citizens and those of other nations, than by centralized control by the Dominion government?

This principle was early recognized after Confederation and centralized action was taken in the establishment of maritime quarantine stations at Gross Ile, Halifax, St. John, Charlottetown, and, later on, at Victoria on the Pacific coast. As time passed, other public health activities were undertaken by the government and delegated to various departments for administration, largely at first to the Department of Agriculture. The Great War brought other problems to the front, and again the federal authorities took upon themselves the care, rehabilitation, pensioning and treatment of wounded soldiers. It was soon felt that a consolidated effort should be made to bring all the government's health activities under one controlling body; in consequence, the Department of Health was created in 1919 by the passage by parliament of an Act entitled "An Act Respecting the Department of Health." As a result of this Act, there were then transferred from scattered departments of government the following services:—

Service	*Taken over from*	*Date*
Quarantine	*Dept. Immigration and Colonization*	*Sept. 1st, 1919*
Public Health Works Act	*Dept. of Agriculture*	*Sept., 1919*
Food and Drugs Laboratory	*Dept. Inland Revenue to Dept. Trade and Commerce*	*Sept., 1918*
	then to Dept. of Health	*Sept. 1st, 1919*
Proprietary or Patent Medicines	*Dept. Trade and Commerce*	*Sept. 1st, 1919*
Marine Hospitals	*Dept. of Marine*	*Nov. 1st, 1919*
Housing	*Committee of Cabinet*	*Nov. 1st, 1919*
Opium and Narcotic Drugs	*Dept. Trade and Commerce*	*Feb. 20th, 1920*

Later on there were created other services such as:

Dominion Council of Health.....*Act of 1919*
Division of Child Welfare.....*April 10th, 1920*
Division of Venereal Disease Control.....*Nov., 1919*
Public Health and Medical Research Laboratory....*July 28th, 1921. Title changed in 1924 to Laboratory of Hygiene, with two branches,*
(a) bacteriological.
(b) pharmacological.

The grouping of these services under one department of government speaks for itself in showing the wisdom of our legislators in creating the Department of Health, whereby a multiplicity of departments previously administering duties referable to purely health measures were once and for all consolidated.

In the framing of this Act it was recognized at the same time that there should be some practical bond of union between the new department and the several provincial health authorities, so there was created the Dominion Council of Health, composed of the Deputy Minister of Health of Canada as permanent chairman, and the chief executive officers of health of each of the provinces as members, together with five other elected members, one a university official engaged in teaching public health, another representing labour bodies, another from the dairying industries, and two others representing women's welfare activities in eastern and in western Canada. This body meets twice a year and exists as a forum for the discussion of health problems affecting all parts of the country, and seeks to introduce, as far as it may be possible, uniformity in general health measures and to foster co-operation in expressing them. Needless to say, the council's actions have already been abundantly fruitful in forwarding public health throughout the land.

In 1928, the present government deemed it advisable to merge three departments of government into one, namely, those of Pensions, Health, and Soldiers' Civil Re-establishment, under one Minister and one Deputy Minister. This was done, and now there functions the Department of Pensions and National Health, looking after all matters concerned with pensions, health and hospitalization and treatment of all returned soldiers.

It is needless for me to detail the various duties of each of the divisions of this department, as the names already set forth designate quite plainly the duties of each, with possibly one exception, the Laboratory of Hygiene. Originally, in conformity to the Act of 1919, the laboratory was known as the Medical Research Laboratory, but as the department began to function it was early discerned that more pressing conditions of a practical nature in response to the needs of the medical profession demanded immediate attention, and so it was decided to mould the laboratory along lines similar to those of the

Hygienic Laboratory of the U.S. Public Health Service at Washington, calling it the Laboratory of Hygiene, making it responsible for the critical examination of such preparations as serums, vaccines, biological extracts—such as pituitrin, epinephrin and thyroid; important drugs—such as digitalis, strophanthus and ergot, and supervision of the salvarsans, so that the sick public could be adequately assured of pure drugs and of a standard quality for the treatment of their ills. Nevertheless, I can assure my hearers that ultimately, when the time is ripe, there will be established in the Department a research laboratory in the true sense of that phrase. In addition, the care and supervision of the quarantine service laboratories at Halifax, St. John, Quebec and Victoria were assumed so that they would be in readiness at a moment's notice to cope with cholera, plague, typhus fever and smallpox, should any of these serious diseases reach our seaports.

COUNTY HEALTH UNIT ORGANIZATION

Earlier I stated that Canada had entered upon the mature phase in its experience with reference to the developments of public health, and all its provinces are vigorously engaged in the conservation of the nation's health along lines of the most modern sort. Unique in such well mobilized methods of public health service, the health authorities of this Province of Quebec began in 1926 a large scale plan to secure more efficient health returns to its citizens by founding county health units, similar to those that had for years past in England and more recently in the United States passed experimental stages and had given proof of their wonderful aid to the public health. As carried out, one or more counties are united to provide the funds necessary to the efficient carrying on of the work by officials connected with the unit. Each unit consists of a full-time medical officer, two public health nurses, a sanitary inspector and a secretary, the four former are actively engaged in travelling about the district inspecting, educating through public lectures, enforcing health regulations, making house to house inspections, etc., whilst the secretary attends to general office routine in regard to correspondence and records, and attends to the collection and forwarding of vital statistics. The sick are looked after by local physicians and infectious diseases are cared for under the control and advice of the medical officer in charge of the unit. Nine such units are now functioning in Quebec and three more are in process of organization. The results since 1926 have been most encouraging, the general and infant death rates having fallen off most noticeably, and communicable diseases have been markedly reduced in numbers, and in addition, the public has been thoroughly aroused to the value of public health measures by educational addresses and has become intensely interested in helping onwards the efforts of the authorities to maintain high health standards henceforth.

Others of our Canadian provinces have followed Quebec's initiative in the establishment of health units; in 1927, British Columbia instituted the county health unit scheme and now has four in operation; Saskatchewan established its first unit this year; in Ontario there is as yet none of these county units, but the province, as is well known, has had functioning for many years past some eight health districts presided over by whole-time health officers who have rendered and continue to do admirable service to the public health of the province; in New Brunswick the conditions are very similar to those in Ontario, whilst in Alberta, Nova Scotia and Prince Edward Island the county health unit is as yet not functioning.

That the health unit scheme furnishes a most powerful lever in reinforcing present day public health measures cannot be gainsaid; and its wide acceptance here in Canada strikes me as being only a matter of time. At present, the one thing that blocks its rapid advance is the cost of establishment and operation. Dr. J. W. S. McCullough, in his admirable article on "The County Health Unit," in the CANADIAN PUBLIC HEALTH JOURNAL of March, 1929, estimates that it would take not less than $10,000 annually, possibly $15,000; Dr. A. Lessard states that in Quebec the annual budget of its units is fixed at $12,000, of which one half of this sum is paid out of the province's coffers and the other half is collected from the local municipalities concerned, through a special health tax levied on assessable property. Dr. F. C. Middleton, of Saskatchewan, estimates the cost at $14,000, of which one-half the cost is met by the municipalities affected, a tax of one-fifth of a mill, 35 cents per capita, on the total assessment being raised. To realize how fully and seriously this idea of the health unit has taken with our leaders in public health, it is reported that in a discussion of this topic by the Dominion Council of Health last December, a resolution was passed as follows:—"Resolved, that the Dominion Government be respectfully requested to further the establishment of Full-Time Health Units by the voting of an annual grant of money for this purpose." At present it would not appear that active federal support will be given to such a proposal this year, burdened already as the government is in the way of financial commitments to the provinces and practically to all of the voluntary health agencies in the country, and faced in the future by an appeal to establish "Sick Insurance."

HEALTH SURVEYS

Marking further progress in health affairs in Canada, and what may be considered a relatively novel thing with us, was the recent health survey of the city of Montreal, following upon the typhoid epidemic of 1927. A health survey is undertaken to establish or evaluate all factors which play a rôle in forwarding or retarding the health of any community. Strict examination is made of the health regulations in

force, the efficiency with which they are carried out; vital statistics; hospital accommodation; financial support to health organization and practice; laboratory facilities for diagnosis; public health nursing; medical school inspection, and the various other modern aids that go together to safeguard the people's health. An investigation of such a sort is usually undertaken by a well organized committee, particularly of a central group of persons technically trained in health procedure, whose collected information is submitted to a searching analysis by the use of scoring or appraisal forms, covering all research health data and activities of the community involved. Finally, upon the basis of the appraisal results it is usually an easy matter for the survey committee to reach sound conclusions and to be able to hand out recommendations to the health authorities for the betterment of hygienic conditions. Such a survey, I have said, has been completed in this city, and already many of the recommendations have been carried out to the advantage of the citizens, and it is fondly hoped that the energetic and efficient health officials will soon receive the necessary "sinews of war" to enable them to complete the large programme of reform presented to their civic government.

In respect of health surveys, I am confident that many communities throughout Canada would vastly benefit by following Montreal's example. It is a species of stock-taking that business concerns for generations have found to be vital to their integrity and success, and this Association, as an exponent of health education, might well foster the idea and be prepared to lend active assistance when necessary in this form of health progress.

THE WORK OF VOLUNTARY ORGANIZATIONS

Another feature in the progress of public health in Canada is the work of some fourteen different voluntary organizations as a whole of nation-wide membership, whose efforts along their special lines have been most praiseworthy. Being of a voluntary order, some are finding the struggle for existence, as their activities widen, becoming more difficult as they annually call upon the public for financial support; in addition, there is a growing tendency to make appeals for federal government aid. Further, there is an apparent tendency developing, more or less unconsciously, of overlapping in the fields of their labour, and even an encroachment upon what should ever remain activities of government alone. It is a healthful sign of the times when it is mooted that there will likely be in the not distant future a representative meeting of the officers of these various voluntary organizations under governmental chairmanship to discuss in a broad and intelligent manner some of the difficulties just enumerated and to ascertain in what manner the best way lies wherein they may best function as an aid to the official boards of health in the several provinces of this

Dominion. It is sincerely to be hoped that some permanent plans for aid, guidance and continued harmonious action among these bodies may come of such a meeting.

DIRECT TAXATION FOR HEALTH PURPOSES NECESSARY

Fundamentally, the care of the public health in all its phases is essentially that of the constituted authority in each province, made up of members of the medical profession trained in lines of public health service and aided by a corps of specially trained workers, all of whom should be paid to devote their full time to their duties. To give this full effect, financial aid ought to be liberally given by the province, the municipalities and the federal government through the systematic application of a mill-rate on a proportion of the publicly raised taxes of each body, rather than by special grants each year It is, it seems to me, the present day lack of a carefully considered system of governmental aid that is now holding back progress in public health. It might be well worth while for some representative body, none better than our own Association, to undertake by a well-organized committee some constructive scheme whereby there might be recommended a system of taxation, or by some other means, in support of public health that would carry a convincing appeal to those in charge of governmental purse strings. Motor car owners are directly taxed, and gasoline is taxed for the especial purpose of the upkeep and extension of the public highways. Why not some definite proportion of the general taxes for public health? Let us be businesslike in our efforts!

OUR OWN ASSOCIATION

As regards our own Association, some words may not come amiss. Like other organizations, ours was hard hit by the Great War, general adjustment and reorganization in public and private life had its repercussions amongst us, and a period of lassitude prevailed in matters appertaining to our life as an association, so much so that some three or four years ago it looked very much as if we were to see very soon the "to let" sign hung up in our windows. But there were valiant spirits among our members, who were not content to sit idly by and watch the candle of effort burn to its socket and splutter out. It is to the splendid efforts of my predecessor in office and to several stout-hearted men upon his executive that we can now safely declare that we are once more marching along the highway to great endeavours.

We have had of late a series of successful annual meetings, with ever increasing programmes of interesting topics dealing with public health matters. The association owns and thoroughly controls its journal, which is enlarged, full of authoritative contributions of the highest order, and is under excellent editorial and business management, comparing most favourably with the journal of our larger, sister

organization to the south. But to back up a well begun resurrection, we must still go forward in our endeavours to make this Association, as it ought to be, the greatest educative factor in the public health life of this growing country of ours. To attain such an objective, we need a goodly array of new and eager members, professional and lay, who should count it an honour to be of our membership and who can so strongly assist in a thousand and one ways to help us to build up a virile and healthy people. It is to be hoped that this meeting will of itself be the incentive for many to join us who have hitherto remained outside our door. With increase of membership and support we could add to our present six sections and five national committees, and incidentally to our continued usefulness.

In conclusion, I think that I am safe in saying that never before have the health interests of the citizens of Canada been so well protected and furthered as at the present time through the efforts of the medical and nursing professions and the machinery of well-directed government. It would be folly to conclude that the work is finished; far from it; much remains to be projected and undertaken, but we all can feel assured that what has been accomplished has been solidly founded, thanks to wise leadership of those, some of whom have retired from active work, or have "crossed the Great Divide," whose counsel and efforts we sadly miss, and of others who fortunately are still at the helm directing the course of events with good judgment and skill. In their hands, and when the time comes in those of their successors, the good work of conserving the health of our citizens will ever go forward contributing to the upbuilding of a happy and contented people.

Leptospira Icterohæmorrhagiæ Occurrence in Wild Rats at Toronto*

By

GORDON C. CAMERON, M.D.,

AND

D. A. IRWIN, M.B., B.Sc. (MED.)

(From the Department of Pathology and Bacteriology of the University of Toronto and the Bacteriology Laboratory of the Toronto General Hospital)

THE experience of one fatal case[1] and two unpublished recovered cases of leptospirosis icterohaemorrhagica (Weil's Disease) in the wards of Toronto General Hospital, actuated a study of the incidence of the causative organism, leptospira icterohaemorrhagiae, in the Toronto district. The work was begun in December, 1926, and continued through the following spring. The fact that all three patients were packing-house employees served to direct attention to the most likely source of infection, the slaughter-house rat. The fact that all patients were Maltese was regarded as coincidental.

The clinical and bacteriological literature has been comprehensively collected by Bates[1] and need not be extensively reviewed here. The organism was discovered and aetiologically established in Japan in 1915 by Inada[2] *et al.*, and named by them "Spirochaeta icterohaemorrhagiae." Noguchi[3] in 1918 proposed a change of name to "leptospira icterohaemorrhagiae," which proposal has been generally followed. Strains of leptospira isolated in South America by Noguchi[4] and thought by him to be the cause of yellow fever were named leptospira icteroides, but immunity tests applied by Theiler and Sellards[5], and Sellards and Theiler[6] establish these strains as identical with leptospira icterohaemorrhagiae. There are other varieties of leptospira, first described by Wolbach and Binger[7], and subsequently studied by, among others, Hindle[8] in London and Walker[9] in Washington, which would seem to be free living forms. Uhlenhuth and Grossmann[10], however, believe that these forms may become commensals of the rat and possibly display specific pathogenicity. Since the discovery of the organism, reports of its recovery from infectious jaundice patients in widely separated countries indicate that it is virtually ubiquitous. It has been uniform experience that where the disease

*Presented before the Laboratory Section, Canadian Public Health Association, Annual Meeting, Montreal, June 1929.

occurs, leptospira which will produce the disease typically in guinea pigs can be obtained from the kidneys of wild rats. As we know of no previous study of this phase of the problem in Canada, this report is presented to add to the records an area where the rat has been incriminated.

Seventy-eight rats were captured in cage traps and investigated. Seven were obtained from the University Medical Building and were considered as derived from a "rat community" different from the other seventy-one which came from the community stock-yard or abattoirs in its proximity. The likelihood of frequent migration of rats from one community to another was considered to be small. The animals were all of the same species, Rattus norvegicus (Erxleben)[11]. The captures varied in number from one to eleven in a trap. All seemed vigorous and healthy.

PROCEDURE

Disposal was made in all cases on the day of capture. The animals were killed individually in a jar of chloroform vapour and at death the body was immersed in a solution of liq. cresol saponatis. From this it was spread upon a dissecting board and the skin reflected from the ventral surface of the trunk. The exposed flesh was then moistened with alcohol and flamed. The viscera of the abdomen and thorax were exposed with sterilized instruments and fresh instruments were taken to remove the viscera under investigation. The kidneys from all animals were investigated and in a few instances the liver, spleen and lungs were subjected to histological search. Four procedures were applied to all kidneys, as follows:—

1. Microscopic dark-field examinations of fluid expressed from the tissue.
2. Culture.
3. Guinea-pig inoculation with a saline suspension of both kidneys crushed in sea sand.
4. Search of histological preparations made by Levaditi technique.

TECHNIQUE AND RESULTS

Dark-field.

Fragments from both kidneys, which included a portion of the pelvis, were crushed between two sterile slides with a few drops of saline, and a microscopic preparation was made from a drop of the fluid that was reasonably free from macroscopic blood.

Leptospira were observed in twenty instances. The numbers varied greatly. Sometimes they were immediately detectable while at others a search of fifteen minutes was rewarded only by the observance of a few isolated organisms. Other bacteria, bacilli and cocci, were seen in a few preparations but they were not investigated by

cultural methods. Trypanosomes (lewisi?) were also observed in the preparations from three rats.

Culture.

The basis of the medium was made by extracting one pound of minced beef heart overnight in the ice-chest. After removing the fat the mixture was simmered for one half-hour and the meat was filtered out.

The filtrate was then adjusted to pH. 7.8 and sterilized in the Arnold in flasks containing 180 cc. each. When required for use there was added to each flask 10 cc. of 2 per cent solution of agar-agar and 10 cc. of human serum, and this final product was distributed aseptically into test tubes to a depth of about four inches. The tubes were inoculated with sections cut from the viscus. Incubation was at 37.5°C. for a week with subsequent incubation at room temperature for three weeks or longer before the culture was declared negative. The tubes were kept covered with aluminum caps to prevent evaporation.

Only four strains of leptospira were obtained in culture. One was derived directly from the kidney of a rat and three from the tissues of first-passage guinea pigs. In no instance was the growth sufficiently dense to cause cloudiness. Microscopic examination of the cultures was not made until the third day and in one instance organisms were found at this time, but in the other cultures they were not sufficiently numerous to be detected until the fifth or seventh days. The survival period of the organisms varied. One culture showed actively motile organisms at two months and non-motile forms at three months. In another culture where they were actively motile at three weeks they were apparently dead in a month. Detailed care was taken to carry the strains, in that numerous sub-cultures were made with actively motile organisms but we were not able to carry any strain beyond the first generation of subculture.

Guinea-pig Inoculation.

Sections from both kidneys of each animal were dropped into an aluminum test-tube cap which contained sterilized sand. Enough saline to immerse was added and the tissue was crushed with a flamed glass rod. About one cc. of cloudy supernatant was then given to a guinea-pig intraperitoneally. To facilitate the observance of jaundice, white guinea-pigs, or those with white spots, were chosen when practicable. Pigmented skin obscures this sign of the disease, but bilirubinuria was easily detected by placing white paper in the bottom of the cages of highly pigmented animals. Daily temperature observations were made on each animal for two weeks when they survived that long.

Jaundice was induced in twenty of the seventy-eight guinea-pigs

which were inoculated with rat tissue. In only eleven of the inocula had leptospira been observed by dark-field examinations, which leaves nine in which we failed to detect the organisms directly. There were also nine inocula in which we demonstrated the organisms but which failed to infect guinea-pigs.

In the guinea-pigs, jaundice and lethargy were the dependable external signs of the disease. Fever was usually present but its duration and intensity was found to be so variable as to make it an unreliable criterion. Animals in which the disease was well advanced were usually killed to facilitate aseptic necropsies, but we had no example of recovery where jaundice became established. The usual survival period of the animals was eleven days, though in one case death from the disease occurred at seven days, and one animal died at fifty days with characteristic signs. This experience was considered significant of a prolonged incubation period for, while the possibility of cage infection must be admitted, we had no other result that would lead us to suspect infection by other means than the hypodermic needle. However, in this instance the inoculum had not been proven by dark-field to contain leptospira.

At necropsy there was intense icterus and widespread capillary haemorrhage. As a routine, only the kidneys and livers of infected guinea-pigs were examined for leptospira by dark-field and animal inoculation, but in one animal which was obviously intensely infected, they were proven to be in liver, kidney, spleen, heart, lung and skeletal muscle. We were able to demonstrate, with relative ease, the leptospira in all animals in which haemorrhagic icterus was apparent. The disease was frequently carried serially in three generations of guinea-pigs, but it also failed to take a number of times when the inoculum was proven to contain a large number of leptospira.

Histological Examination.

The kidney, liver, spleen, heart-muscle and lungs of all the rats which by dark-field examination showed leptospira in the kidneys were examined histologically. Kidney sections from all of the rats were stained for spirochaetes by Levaditi technique. Levaditi preparations were also made of the other viscera from several of the rats which had leptospira in their kidneys. A detailed report of this phase of the work as well as the histology of infected guinea-pig tissue has been made by one of us, (D.A.I.)[12]. In summary, it may be stated that leptospira were demonstrated only in the kidney of the rats and only in the kidneys which had proved positive by dark-field investigation. The numbers, as in the dark-field preparations, were quite variable. In a few instances they were only found after intensive search. The distribution of the organisms was chiefly in the lumina of the tubules though some were within the stroma and in the parenchymal cells of the tubules.

None was found in the glomeruli. The sections stained with haematoxylin and eosin did not definitely manifest disease by either degenerative or inflammatory reaction.

A tabular summary of the result of the investigation is given below:—

DATA OF LEPTOSPIRA DEMONSTRATION IN SEVENTY-EIGHT RATS

	Dark-Field	Guinea-pig	Culture	Levaditi		
Medical Building..	−	−	−	−	7	(Medical Building source)
	−	−	−	−	42	
	+	−	+	+	1	
	+	−	−	+	8	
	+	+	−	+	11	
	−	+	−	−	9	
					78	

DISCUSSION

The results obtained show that it was a relatively easy matter to demonstrate leptospira in the kidneys of a high percentage of rats captured about Toronto packing houses. The identification as leptospira icterohaemorrhagiae was established in only twenty of the twenty-nine positive examples. The failure of nine of the inocula to produce fatal disease might be explained by either the non-specificity of the leptospira or by relative immunity of the guinea-pig. In view of our occasional failure to infect guinea-pigs with material from freshly killed guinea-pigs which was abounding in leptospira we feel that susceptibility in the guinea-pig is not uniform and that immunity of the test animal would explain our failures. However, we were able to regularly demonstrate leptospira, morphologically identical with the L. icterohaemorrhagiae, in the scum about the drain pipes of our ice-chests. An impure culture of these in one instance failed to produce jaundice in a guinea-pig when given subcutaneously, though an indolent ulcer developed at the site. These were probably the free living variety of Wolbach and Binger, but it has not been proven that such varieties do not invade the kidney of the rat. An important practical deduction may be made though, that the guinea-pig is not uniformly susceptible and in attempting to isolate the organism from patient or necropsy subject, reliance should not be placed in the inoculation of one animal.

The fact that one animal survived fifty days after inoculation was perplexing. An incidental experiment where one of two animals became infected by 0.25 cc. of culture being placed on the freshly shaved, but seemingly unabraded skin, indicated that cage infection is easily possible. However, no other experience led to us believe that this was likely to occur.

The sex of the rats did not seem to be of importance as males and

females were about equally represented in the positive animals. The age perhaps justifies brief discussion. It was noteworthy that young animals were usually negative. Only one of eleven rats noted as "small" yielded the leptospira. This observation may be significant in determining the mode of invasion of the rat. The urogenital tract of the rat was the only tissue that was found to harbour the organism and in the kidney at least the parenchyma was invaded. If the infection were alimentary or integumentary, other tissues would be likely to show lesions. It is difficult to ascribe such selective affinity to the organism in the rat when it is so highly invasive by haemotogenous infection in the guinea-pig. It seems to us that the restriction of the organism to the urogenital tract in the rat and the relative freedom of young animals would indicate that venereal infection is a possible mode of invasion. The parasitism of the organism in the rat must be slight, but it is doubtful if it can be considered a true commensal.

Our comparative failure with *in vitro* cultivation was disappointing. Our ratio of successful cultivation was discouragingly low and our eventual failure with sub-cultures has not been explained. The blood, the only variable in the medium, having come from patients who might have received arsenical treatment as recently as a week before withdrawal, was substituted by other samples of human and sheep blood, but this did not incite greater success. The fact that there were usually negative tubes in batches of sub-cultures forced us to the conclusion that we were dealing with fastidious organisms that do not readily adapt themselves to *in vitro* cultivation.

The histological procedures were informative in showing the almost negligible amount of cellular reaction and the distribution of the organisms in the kidney. However, the fact that none of these preparations revealed organisms when the dark-field had failed proved that, as a method of detection, the work involved in the use of the microtome was not justified.

To determine the normal incidence in rats, more protracted studies are necessary. The number of rats secured in the medical building was too small to permit the conclusion that no rat in the building harboured leptospira. Then again, none of the last twenty-one rats, obtained from the abattoirs between the middle of March and the first of June, proved positive. Probably we missed detection in some instances but unquestionably most of these were negative, and this may reasonably be taken to indicate that there may be variations in incidence, seasonally or otherwise determined.

SUMMARY

1. Leptospira were demonstrated in 37 per cent of seventy-eight wild rats captured in Toronto.
2. Twenty strains or 69 per cent of the total were proven to be

leptospira icterohaemorrhagiae by their specific pathogenicity for guinea-pigs.

3. Guinea-pigs vary in their susceptibility to leptospira icterohaemorrhagiae. More than one animal should be used in attempting to isolate the organism.
4. Only the urogenital tissues of the rat were found to harbour the leptospira. Venereal infection may explain the dissemination of leptospira in these animals.
5. Dark-field technique was found to be preferable to histological technique for detecting the organisms.
6. The incidence percentage was found to vary at different periods.

The supervision of this work by Prof. Oskar Klotz is gratefully acknowledged.

REFERENCES

(1) Bates, J. E. Leptospirosis Icterohaemorrhagica (Weil's Disease), with report of a fatal case. *Can. Med. Assocn. Jour.*, 1926; 26, p. 1,466.

(2) Inada, Ido, Hoki, Kaneko and Ito. The etiology, mode of infection and specific therapy of Weil's Disease. *Jour. Exp. Med.*, 1916; 23, p. 377.

(3) Noguchi, H. Morphological Characteristics and nomenclature of leptospira (spirochaeta) icterohemorrhagiae. *Jour. Exp. Med.*, 1918; 27, p. 575.

(4) Noguchi, H. Etiology of Yellow Fever. II. *Jour. Exp. Med.*, 1919; 29, p. 565.

(5) Theiler, M., and Sellards, A. W. The relationship of leptospira icterohaemorrhagiae and leptospira icteroides as determined by the Pfeiffer reaction in guinea-pigs. *Am. Jour. Trop. Med.*, 1926; 26, p. 383.

(6) Sellards, A. W., and Theiler, M. Pfeiffer reaction and protection tests in leptospiral jaundice (Weil's Disease) with leptospira icterohemorrhagiae and leptospira icteroides. *Am. Jour. Trop. Med.*, 1927; 7, p. 369.

(7) Wolbach, S. B., and Binger, C. A. L. Notes on a filterable spirochaeta from fresh water. Spirochaeta biflexa (new species). *Jour. Med. Res.*, 1914; 30, p. 23.

(8) Hindle, Edward. Leptospira in London waters. *B. M. J.*, 1925; 2, p. 57.

(9) Walker, J. E. Leptospira from tap water. *J. Inf. Dis.*, 1927; 41, p. 163.

(10) Uhlenhuth and H. Grossmann. Etiology and epidemiology of infectious jaundice (Weil's Disease) with regard to types of spirochaeta icterogenes. *Klin Woch.*, 1926; 5; p. 1,113 and p. 1,163.

(11) Miller, Gerrit S., Jr. History of N. American recent mammals. 1923, Bul. 128, Smithsonian Institute.

(12) Irwin, D. A. Leptospira icterohaemorrhagiae. The pathological lesions in wild rats and guinea-pigs. 1927. Unpublished thesis for B.Sc. (med.). University of Toronto.

The Problems of the City Medical Health Officer*

By

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THE problems that face a medical health officer are many and varied. All medical health officers, whether engaged in urban or rural municipal health work, have, to a certain extent, similar problems to solve. They are continually dealing with men and women who cannot always see eye to eye with them. Doubtless other civic officials have their problems, but the element of human nature does not confront them at almost every move. Human nature is sometimes unreasonable, perverse and foolish, and often we wish we could drive it in the paths we direct. This cannot be done, so we endeavour to successfully lead it by patience, firmness and tact.

An important development in the past four decades is the awakening of a sanitary conscience. To many people it is a new thought that the care of the body and the cleanliness of surroundings are very considerable factors in the safety and comfort and even the life and health of their neighbours. Some have not yet fully learned the lesson contained in the old adage: "Do unto others as you would have them do unto you." One person alone cannot fight against the common foe—disease. We may have the best laws and regulations but they are difficult of enforcement unless we have the combined and intelligent co-operation of the community. Laws and regulations do not make a clean city or prevent disease, and it is the application and enforcement that get us into difficulties. Our laws and regulations are fairly rigid but they are not unreasonable and we must appreciate the fact that they are full of common sense. We find in the performance of our duties that many people have the idea that we interfere with their liberties, compelling them to follow instructions and to rectify irregularities which they claim we overlook when dealing with their neighbours. These difficulties arise more particularly when dealing with communicable disease and the collection and disposal of garbage.

Problems in the Control of Communicable Disease

Public health work is rendered difficult by the fact that the control

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of most communicable diseases depends upon the control of man himself. Man contracts a number of infections from the lower animals and from his surroundings, but the greater number are transmitted from man to man. We have a certain degree of control over our surroundings, we have dominion over the lower animals, but the control of man requires the consent of the governed. It is easier to control malaria than tuberculosis; rabies than influenza; and glanders than measles.

We sometimes find that the outbreak of a communicable disease occurs in a home where the construction of the house readily lends itself to division, and to isolation of the patient and attendant in one part, allowing the remainder of the family to occupy the other part and follow their occupations without menace to the public. In other homes this procedure is not feasible and our opinion receives little respect and much criticism. I am doubtful if we ever obtain strict isolation where isolation only is required, as in some of the minor communicable diseases, especially whooping cough. The attending physician prescribes plenty of fresh air, which is a good advice; in fact, all the old text books advised removal to another locality. If the medical health officer of the present day allows this migration without the consent of the provincial health authorities and that of the physician in the district to which the patient goes, he is liable to be called upon for an explanation and probably receive a severe reprimand. When fresh air is prescribed the relatives very frequently decide that the streets are the only place where fresh air can be obtained and appear greatly surprised and give expression in very forcible language when informed that this is not allowed. I am fully convinced that outbreaks of measles, whooping cough and mumps would not reach such proportions if parents would bear in mind that a cough followed by vomiting, or a rash, or swelling in the neck, may be a menace to other children, and that they should obtain advice as speedily as possible. It is admitted that no one is infallible and it is often difficult indeed to make a definite diagnosis at the onset of whooping cough or in the case of some of the irregularities of mumps.

Bad Housing Problems.

These may be considered to consist of any conditions of housing that tend to impair the physical and moral health of the occupants. Four hundred cubic feet of space for each adult does not prove that the housing conditions are satisfactory. The methods of heating and sanitary conditions must always be considered. One often finds very satisfactory conditions where the space occupied by each adult is very much less than that prescribed by authorities. In these cases we find the rooms are thoroughly aired and ventilated, windows are open and doors remain ajar, allowing a current of fresh air to circulate. Build-

ings in the business sections containing space intended for business purposes are often remodelled and altered to provide housekeeping facilities. The method of heating these during the severe winter weather is often inadequate. Very often the landlord refuses to provide the necessary amount of heat. It is a matter of revenue with him and not the comfort of the tenant. The luckless tenant complains and the only satisfaction he gets is that he is at liberty to move if he is dissatisfied. Being mid-winter, and there being possibly a shortage of houses and apartments, he does one of two things,—complains to the health department, or supplies himself with a coal-oil stove to provide warmth. The health department, though willing to aid, has not the authority to interfere, unless in the opinion of the medical health officer the lack of heat constitutes a menace to health and can so be proven in a court of law. The advice the tenant generally receives is that the matter of heating should have been discussed and a definite understanding received from the landlord when the lease was considered. He and his family, therefore, endure the cold and discomfort and doubtless make uncomplimentary remarks about the powers that be, or he provides himself with a coal-oil stove and he and his family suffer its fumes.

These reasons for complaint are not always confined to remodelled business blocks. The tenants of apartment blocks have their grievances to register which are often of a very trivial nature. Some tenants are hard to satisfy and the health department is constituted the arbitrator between landlord and occupant and it must be diplomatic indeed if it does not offend one or both parties.

The saddest spectacle of all is where financial stringency compels parents with several children to use one room as kitchen, dining-room, bedroom and laundry, and coupled with this, there is insufficient or unsuitable food. It is of little wonder that children living in such conditions are pale, delicate, woebegone little creatures, subject to enlarged glands in the neck, nasal discharges and coughs and easy prey for more serious respiratory and other diseases. Living conditions such as these are not without effect on the health of the parents who have the added burden of worry. They cannot be happy and contented and cannot feel that life is well worth while.

This leads to the question of the industrial worker. In the efficiency of the worker, much depends on the air he breathes and the food he eats. In order to meet the demands of his employment, he must have refreshing sleep and this cannot be obtained without pure fresh air. The cleanliness of the body is neglected. There is no means provided for adequate bathing and yet how very necessary it is! The efficiency of a worker who cannot obtain sufficient sleep, pure air and cleanliness of body is very much lowered. Many men compelled to live under these conditions are doubtless cognizant of these factors and the attendant ill effects, but their circumstances prevent them providing a suitable remedy.

The Question of Education.

The health department must assume some responsibility and give encouragement and advice and even financial aid in time of sickness and distress. Our problem, then, is to try to present to each individual in a community the important facts which he should know about public health and the prevention of disease. This is a tremendous task and one that can never be finished. Much has been accomplished and much more remains to be done. There are yet too many preventable diseases. The means to combat at least two, namely, diphtheria and scarlet fever, have been placed in our hands within the last few years. The prevention of these is now more of a task than a problem and we fail in our duties if we do not do our utmost to persuade parents to have their children immunized and offer every facility for this purpose.

New facts are being constantly developed through research and new people are being added constantly to the community. Therefore, there is a task of imparting an increasing mass of information to an ever-increasing population. The magnitude of such a task, instead of being a cause for pessimism, should be a challenge to develop plans whereby each community may feel its sense of responsibility for the important task of health education.

The facts needed for health education are determined by laboratory workers, sanitary engineers and vital statisticians, epidemiologists and clinicians who are close observers of their patients. Health educational matter has been disseminated by official health agencies, by the provincial and federal governments, and by life insurance companies by means of printed leaflets, pamphlets, bulletins and newspaper articles. All these agencies are of incalculable benefit to the medical health officer and greatly aid him in his work.

Milk Inspection.

Milk in its relation to public health has long been recognized as the mediun through which a number of diseases are spread, among which may be mentioned diphtheria, scarlet fever, tuberculosis and typhoid fever. Sound principles of the effective sanitary control of milk have been established already. These principles are sufficiently understood to form the basis of effective milk legislation and regulations. It only remains to bring to the attention of the general public the full realization of the food value of milk and the broad principles of the sanitary control of milk in order to provide a satisfactory solution of the milk problems. This task requires the united effort of the health department, the producers, the creameries, the veterinary surgeons, and the shippers. This is not an easy task in this province, as more attention has been given to agricultural pursuits. We note with satisfaction the efforts being made all over Canada for the establishment of "tuberculosis-free areas." This work is of great importance to the owners of

herds, the rural municipalities and the cities to which the milk is shipped. The establishment of these areas means considerable spade work, patience and painstaking advice on the part of dairy inspectors, and energetic municipal councils. These efforts will bring their reward not only in safeguarding the health of the people but also as a monetary consideration, for, if they are successful in eradicating this disease at this stage of our development, it will be easier and cheaper to maintain these areas free than if we started in at a later date.

A great difficulty confronting milk dealers is the surplus of milk during the late spring and early summer months and the shortage during practically the remainder of the year. This state of affairs can be remedied by dairymen arranging to have a porportion of their herds freshen at different times. Farmers have apparently lost interest as an over-abundance of milk a few years ago glutted the market and cut prices in such a way that a great number gave up in despair. Encouragement, sound advice, and re-adjustment of prices by the creameries, have had beneficial results, a more lively interest is shown all along the line and we hope that in the very near future temporary permits to those who are not regular shippers will not be necessary.

A difficult problem with which to deal is the single cow, kept for the purpose of supplying milk for the family. It is surprising to hear the amount of milk these people drink but presumptive evidence proves that the product of this cow is a source of revenue as well as of food. The milk of this cow is often a menace to the community. The conditions for handling this milk are anything but satisfactory. The owner is generally of foreign extraction and very frequently, either through design or ignorance, illness occurring in his family is not reported to the health department, except through information received from the school nurses or school teachers. The sanitary inspector is often discouraged in dealing with these owners and his earnest endeavours are frequently met with abuse and defiance.

We are fortunate to-day as health officers that the management of the dairies is alive to the necessity of the utmost precaution being observed in producing and handling milk and milk products. It may be said to be the rule rather than the exception to find dairies and equipment of a good sanitary order and an earnest desire to put out the very best and safest milk it is possible to obtain. This is as it should be and the dairy companies that co-operate to the fullest extent with the health authorities are thus doing the best thing to obtain the largest market and best prices for their products.

Some Aspects of the Mental Hygiene of Childhood*

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THE rapid growth of the mental hygiene movement and its inclusion in the general field of public health are developments of comparatively recent origin, for while public health can look back on almost a century of its official existence, mental hygiene has had little more than two decades of development. And in these two decades it has rapidly evolved from a movement whose original concern was with the creation of adequate facilities for the care and treatment of patients in mental hospitals, to the more positive preventive phase of the conservation of mental health, the prevention of nervous and mental disease, and the prevention of delinquency and allied social problems.

To obtain a general notion of the scope of and need for mental hygiene activities one need only take into consideration the enormous number of mentally handicapped individuals that we have with us constantly. It is perhaps not generally known but it is nevertheless a fact that the total number of hospital beds for mental patients is greater than the total number of beds for those who are physically incapacitated. There are eighteen per cent more patients in mental hospitals than there are in hospitals for acute and chronic physical ailments. Accurate statistics have recently shown that the range of mental disease expectancy is one in twenty-two, which means that under present conditions within a generation one out of every twenty-two of the children in our communities throughout the country will be admitted to mental hospitals and that a large percentage of them will remain in these hospitals probably all their lives. Add to this the fact that about two out of every one hundred children have such deficient intellectual endowment that they will have to remain public charges and will never be able to maintain themselves satisfactorily in the community, that eight to ten per cent of school children are so retarded intellectually that their needs can only be met by a special form of education, that juvenile delinquency is becoming a problem of ever increasing importance, and that evidences of mental maladjustments, such as are represented by vocational and social failures, are becoming more and more manifest, and it becomes evident that the need for preventive work in this field is a great one indeed.

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In the face of these facts the natural question that arises is: Is preventive work in this field possible, or, in other words, is such a science as mental hygiene possible? To answer this question it will be necessary to draw an analogy between the development of the science of preventive medicine and that of mental hygiene.

Real preventive medicine became possible only after the epoch making discoveries of the specific etiological factors in some of the more common diseases. It was at this stage of evolution in medical thought that preventive medicine became an actual applied science through its concern with the problems of communicable disease, control of sources of infection and later on with questions of morbidity, mortality, and so on.

Similarly mental hygiene as an applied science became possible only after our notions concerning the etiology of mental disease changed from those of supernatural possession by evil spirits to the more rational and scientific viewpoint of specific natural causes. Now in the development of this trend of thought it became evident, more particularly in this present century, that whereas in the field of physical disease there invariably were some physical etiological factors at work, in the realm of mental disease and abnormal behaviour there were more often mental factors and emotional conflicts which were the causes of mental ailments, and so the attention of workers in the field of mental hygiene became more centered on the prevention of these emotional difficulties, and the elimination and control of those mental and social forces which are incompatible with healthy mental growth and development. Of course, in this process it was found that certain mental diseases had physical causes, such as general paralysis of the insane being caused by the *Spirochaeta pallida* and the alcoholic psychoses by alcohol, but as these physical factors became known their elimination and control became a question for the general field of public health. But, inasmuch as the present day psychiatric feeling is that the majority of mental ailments from the less serious behaviour abnormalities to the actual psychoses are produced by emotional difficulties, and that these ailments are the resultants of a conflict between the organism and his mental or social environment, just in the same way that physical disease is a resultant of the struggle between the organism and his physical environment, the efforts of the mental hygiene movement have inevitably become directed against the mental and social environmental forces which are inimical to healthy mental growth and it is to some of these environmental factors that I would like to bring your attention to-day.

FACTORS INIMICAL TO HEALTHY MENTAL GROWTH

The first of these environmental factors is the general resistance to the acceptance of the principle that behaviour is determined. The fact

that behaviour and more particularly such abnormal behaviour as we meet in mental patients is determined by antecedent causes is fairly readily admitted but there is great reluctance even on the part of medical men to apply this principle to the milder forms of abnormal and anti-social behaviour.

When we meet with extremely peculiar ideas, such as delusions or hallucinations, we immediately feel that the person who has these ideas is not responsible for his thoughts or his actions. But when we are confronted by such behaviour as temper outbursts, marked aggressiveness, stealing, truancy and so-called general troublesomeness in children or adolescents, our attitude is invariably quite different, for in these latter cases most people still apparently feel that a child is quite responsible for his temper outbursts or stealing and they treat him accordingly. The average adult attitude to such behaviour is resentment and his method of dealing with it is punishment. This type of attitude and treatment resorted to is just as unscientific as it would be to punish a child who has measles or diphtheria. For to anyone who has some contact with such problems it becomes obvious that a child's behaviour is quite as much the result of the influence of environmental circumstances on his mental make-up as is diphtheria the product of the influence of the physical environment on his physical make-up. The only proper attitude, then, to this problem must be one of scientific understanding followed by adequate treatment, and yet, as I have already indicated, there is great resistance to this scientific approach to behaviour. One often feels that this resistance is very much analogous to the resistance that was so evident when the concepts of the natural causes of physical disease first supplanted those of the supernatural causes of disease. The difficulties encountered in this transitional period of medical evolution is part of the history of medicine known to everyone. One can only hope that it will not take as long for this principle to become generally accepted. The medical profession will no doubt come to realize the importance of this scientific approach to behaviour, but the layman will probably continue to resist this trend for a long time to come, because to him it means giving up the cherished tradition and beliefs that human behaviour is entirely free from determining factors. And the difficulties in the way of giving up this belief are equally as great as if not greater than those that stood in the way of the acceptance of some of the other epoch making scientific discoveries. It has been said that humanity has had three very great shocks to live through in its transition from the dark ages to our present day. The first was the Copernican discovery that our world is not the centre of the universe. The second was the Darwinian concept of the descent of man, and the third is the scientific attitude to behaviour, namely, that behaviour is determined by definite causes which must be discovered and understood before it can be adequately treated.

Results of Wrong Emotional Attitude of Adults

The second environmental force that makes for unhealthy mental growth is the emotional attitude that many adults assume toward children and adolescents. Many parents, teachers, guardians, supervisors of institutions, etc., unwittingly help to create emotional conflicts in children who never quite resolve these conflicts and go through life seriously handicapped. In many patients with mental ailments, in delinquents, psychopaths, anti-social and asocial individuals, one finds that their abnormal behaviour is the direct expression of mental maladjustment which was precipitated or initiated by the emotional attitude of some adult. One could cite numerous instances of the effects of such attitudes but one or two will suffice to illustrate this point.

A child seven years of age, who has not developed as rapidly as the other children in the family, is sent into first grade in school. There he is exceptionally timid, very shy and does not answer questions. The teacher becomes annoyed at the child's persistent refusal to answer questions and punishes him by putting his head under the tap and letting the water run on it. This she does, hoping that it will make the child speak, but this treatment has the opposite effect, for not only does the child remain silent in school but becomes less communicative at home. He begins to hate school, plays truant repeatedly, is punished over and over again. Now at the age of twelve, despite the fact that he has normal intelligence, he is only in third grade and absolutely refuses to go back to school. He is approaching adolescence with a marked resentment and hatred for authority and it is going to be a long and difficult process to readjust him. Another boy of nine who has had some difficulty with his school work because he is retarded intellectually is taunted by his parents who in this way think that they can spur him on to greater effort. He responds by playing truant from school and then refusing to go back. The parents attempt to frighten him with the help of a policeman and when this proves ineffective, the mother, to whom this boy is very much attached, threatens to go away and leave him. The following day the child develops peculiar mannerisms, refuses to play with children his age, plays only with infants and young children, won't wash or dress himself properly, stuffs his pockets with all kinds of rubbish and in many respects acts just like certain types of mentally diseased patients. It took three years to remould, as it were, the attitude of the parents and now this boy is again attending school and his behaviour is gradually becoming more normal.

A child of three and a half years, who is the first child in the family, develops serious temper outbursts just after the birth of a second child. She has never behaved in this way before, has always been a model child but now kicks and screams for hours, breaks some of the dishes and whenever she gets an opportunity attempts to scratch and bite her

baby brother. For this behaviour she is punished but does not improve. The parents admit that since the birth of the second child they have not only entirely neglected this first child but have openly expressed their preference for boys. When, with advice and treatment, the attitude of the parents is gradually changed, the temper outbursts disappear and the child develops an open affection for her brother.

And so one could go on enumerating instances of the effects of adult emotional attitudes on children. Many parents, teachers and others who mould children's lives react to behaviour which they do not understand with feelings of resentment and vindictiveness. They do not realize the rôles that affection and encouragement play in the emotional life of the child and often create in children feelings of insecurity, inferiority and self-depreciation, which result in serious mental ailments. The effects of these adult emotional attitudes on the mental welfare of the child are just as serious as are the effects of improper ventilation and inadequate nutrition on his physical welfare, and so it becomes obvious that this is another environmental force which is inimical to adequate mental health.

Dangers of Rigid Academic Demands

A third factor is the rigid academic demand that is made by our schools, which still base their pedagogical requirements on the theory that all children are equal intellectually and temperamentally. This lack of realization that the mental capacity of children varies, and that therefore there are many children on whom these rigid academic requirements are a serious strain, has helped to produce a large number of our juvenile delinquents, social maladjustments and mentally handicapped individuals. It is definitely known that eight to ten per cent of school children are so retarded because of limited intellectual endowment that they need a special type of academic training. This type of training, which is largely concerned with stressing concrete material rather than abstract ideational development, can best be given in what are now well known as special classes for retarded children. But in spite of this knowledge that a discrepancy between native endowment and academic requirement is certainly not conducive to healthy mental development, there are as yet many school systems throughout the country which have none of these very essential special facilities. And it is in such schools that one finds truants, delinquents and so-called troublesome children. A typical instance of this type of case is the boy or girl who has been attending school for five or six years and has had numerous repeats. He invariably is at the foot of the class and has been gradually promoted because of his size and chronological age. He is taunted both at home and by his playmates for being a failure in school. Having a normal instinctive desire for approbation and attention he invariably is forced to gain this approbation and attention in

devious ways. If he has a good deal of physical prowess he is apt to become either proficient at athletics or, as very often happens, he develops bullying tendencies which sometimes verge on actual cruelty. If he has no special physical ability he more often reacts to this unbearable situation which he has to face in school by either playing truant or by becoming a class nuisance. The truants wander about the streets, become delinquents and usually get into the juvenile court. Many of these children become repeated offenders, are sent to so-called reform schools and very often end up as anti-social adults with criminal tendencies.

Those children who attempt to gain the approbation that they need so much, through their troublesome behaviour in school, usually react by becoming the class clown; they resort to all sorts of methods to make the class laugh and thus centre attention on themselves. Such children are nearly always entirely misunderstood by teachers who punish them repeatedly, but punishment is, of course, quite ineffective, and this state of affairs continues until the child is expelled from school, becomes an outcast and eventually grows up into either an anti-social or unhappy, badly adjusted adult. There is still another method by means of which retarded children may react to their failure in school, and that is by showing general signs of withdrawing as it were from the struggle. Such children become more and more sensitive, shy, timid and drawn into themselves. They avoid contacts with others, do not indulge in games and begin to get satisfaction through day-dreams, building phantasies, and deriving pleasure in similar ways of avoiding the realities of life. It is from this group of children that we get many of our psychopathic types, neurotic, and mentally diseased individuals.

These instances then serve to illustrate the powerful influence that these rigid academic demands have on certain types of children and the importance of coping in more adequate fashion with this force which has such a detrimental effect on proper mental growth and development.

Occupational Misplacements of Adolescents

The next harmful environmental factor that I would like to call your attention to is the indiscriminate and unscientific placement of adolescents into the different available occupations and vocations. It is a maxim of mental hygiene that in order to be mentally healthy and happy one of the requirements that a person must meet is satisfactory adjustment to his work. Now it seems obvious that to meet this requirement it is absolutely essential that scientific vocational guidance must be resorted to and yet very little of this is being done at the present time. Largely through the efforts of the public health movement people have become aware of the importance of physical fitness for certain types of work, but they have not as yet come to realize that intellectual and temperamental suitability are of as great, if not greater,

importance, particularly in the physically less hazardous occupations. Intellectual unsuitability invariably results in the production of emotional conflicts with their inevitable accompaniment in the form of loss of confidence in one's ability to perform a task; this in turn produces feelings of insecurity and inferiority, which state at best leads to unhappiness and dissatisfaction and in the more serious cases eventuates in neurotic symptoms and mental ailments. A concrete instance of a case of this sort is that of a girl of twenty who suddenly developed peculiar fears and crying spells, became very much depressed and talked of wanting to commit suicide. In her family group she had always been recognized as being dull and backward. In school she had failed repeatedly and was only promoted because of her chronological age. When she left school at the age of fifteen she was in fourth grade and could barely compute the sums that the average ten-year-old child can do with ease. In the face of these facts, her parents, who were very reluctant to accept the fact that they had a feeble-minded daughter, attempted to place her at work for which she was totally unsuited. Through their influence with certain employers she was given a number of positions, all of which required at least average intelligence and her failure at these positions only served to accentuate her feelings of inferiority. Finally, her only way out of this unbearable situation was to develop the symptoms of a mental disease.

Temperamental unsuitability to certain occupations usually produces even more serious states of mental maladjustment than does intellectual unsuitability, for in these cases there is a greater realization of the significance of success and a more sensitive reaction to failure. This results in mental conflict with its inevitable accompaniment of moodiness, irritability, feeling of depression and other neurotic symptoms.

The Sex Problem in Adolescence

The last environmental factor which is inimical to healthy mental development, and which I would like to refer to briefly, is the inadequate facilities that exist for aiding the child's adjustment to the problem of sex. In the transitional period between childhood and maturity the process of adjustment to adult sex requirements is perhaps the most intricate and quite the most difficult one that the individual has to make. For although it is obvious that in this transitional period he has to pass through the difficult stages of physical maturation, develop adequate relations between himself and the rest of society, and in general learn to face the realities of life, these obstacles, as it were, to his progress are nevertheless made less difficult by the interest and help that he gets from the rest of society, who realize that it is their duty to help direct into the proper channels his over abundance of physical energy and instinctive desire for social relationships. The importance

of gymnastics, of other physical, social and recreational facilities has long been recognized by society at large. But in the realm of his sex life the child, and more particularly the adolescent, is left to struggle as best he can through this delicate and trying period. With the development of the first physical and mental signs that characterize the early stages of adult sex life, his interest in this new phase of his life becomes very marked and his natural tendency is to turn to his parents, teachers, physicians and other adults in the community for information, help and guidance. But as a result of the general taboo that society has placed on the question of sex, these adults react to such questions with an air of superiority and an attitude of prudishness. And when they do profess to give advice, not only do they show their complete ignorance and incompetence, but they also help to inculcate, in children, notions which lead to mental conflicts and which very often result in serious mental breakdowns. Physicians are no exceptions to this rule, for until very recently the medical students in their undergraduate years received absolutely no instruction in this subject, and when they were confronted, as they frequently were, by such problems as onanism (masturbation) and other similar sex difficulties, they had only their own experience to rely on, with the result that their advice frequently had the opposite of the desired effect. An instance of a case of this sort is that of a boy of fifteen who developed peculiar fears and obsessions. Several times a day he would rush to his mother for help, said he was weak, thought he was going to die, would become very emotional and cry a great deal. He was depressed, stopped going about with his playmates, was noticed to be spending an unusual amount of time in the house, and nearly every night he would wake his parents and insist that his mother stay with him until he fell asleep. These symptoms were the expression of a strong sex conflict which had been determined by an unusually prudish home atmosphere, and the neurosis in this boy's case was actually precipitated by the admonitions that he received from his family physician to whom he went for advice. This doctor resorted to the typically mediaeval method which is still employed in such cases, that is, he attempted to frighten the boy by telling him that the results of such difficulties and practices would be insanity, neurasthenia, and so on. It took a great deal of effort to give this boy a more normal attitude to his problem and to overcome the fears and obsessions which he had. And this process was made all the more difficult by the fact that he had been reading a good deal of literature on this subject, and this literature apparently was full of such advice as he had received from his family physician.

Another instance of serious mental ailment resulting from this prudish, ignorant and unscientific attitude to sex problems, is that of a boy of eighteen who had been struggling with the same type of problem. In his dilemma he went to his spiritual adviser for help, but, while treated with kindness and sympathy, was nevertheless thrown into a

serious state of mental ill health by the advice which he received, and the advice was similar to that of the physician referred to in the previous case. This boy attempted to do as he was told, that is, to suppress completely all interest, curiosity and desire for some enlightenment on his difficulties, with the result that he developed mild delusions of persecution, he thought everyone was against him, that his class-mates were constantly looking and laughing at him, and in general his behaviour resembled that of an early mental disease.

Perhaps the greatest task which mental hygiene has to perform is that of helping to overcome the ignorance, the repressive atmosphere, and the incompetent advice which are at the present time associated with the problems of sex.

SUMMARY

To sum up then:

I have attempted in this paper to indicate briefly the scope of mental hygiene activities, its relationship to public health and more particularly to emphasize the ill effects of certain environmental forces on the mental welfare of the individual.

These environmental forces are:

(1) The resistance which society shows to the acceptance of the principle that behaviour is determined by causes which must be dealt with adequately.

(2) The effects of certain adult emotional attitudes on children.

(3) The rigid academic demand made by our schools.

(4) The indiscriminate and unscientific placement of adolescents into various types of work.

(5) The inadequate facilities for the child's adjustment to the problem of sex.

Editorials

THE PROBLEM OF ACCIDENTAL DEATHS

ONE of the very definite aims of preventive medicine, with which no one will take issue, is the prevention of premature deaths. To this end the logical method of approach is to review the causes of death as recorded in statistical data and to balance the knowledge concerning their causation over against the practicability of applying such measures as are known to be effective in their control. That is to say, in the case of diphtheria in Ontario, one finds that deaths from this cause account for approximately ten per cent of all deaths in the age group one to fourteen years. The cause of diphtheria is known, and a firmly established, inexpensive method of prevention exists. It becomes a question then for the administrator to determine whether such measures entail a legitimate expenditure of the funds at his disposal, and if so, by what means the measures may be effectively carried out. Theoretically, the prevention of diphtheria is a problem, the solution of which is not difficult either from the scientific or economic point of view.

In striking contrast to diphtheria prevention is the matter of accident prevention. It may be objected that this is not a matter with which preventive medicine is concerned. Strictly speaking, that is true. However, the disconcerting fact is that among the eight chief causes of death in Ontario, considered by age groups between the years 1922-1926, death from external causes between 5-14 years is *first* on the list—numerically expressed, an average of 207 deaths a year. The records of the Ontario Safety League show, for children under 16, in the years 1926-1928, 349, 336 and 392 accidental deaths. Of these, drowning and automotive vehicles account for more than half; twenty-three per cent were caused by automobiles alone. The latter as a cause of death, all ages, shows an increase of twenty-three per cent in 1928 over 1926. "External causes" ranks second only to tuberculosis as a chief cause of death in age groups 15-49. Sixty-two per cent of deaths from this cause are due to accident. Whatever other complicated factors are involved, at least one would seem to be definitely established and readily remediable—that of level crossings. Approximately 15 per cent of fatal automobile accidents are directly attributable to this cause. It would seem that one obvious conclusion is justified, namely that any programme that has for its object the prevention of premature deaths must include some means of coping with the serious problem of "deaths from external causes", of which accidents, and especially automotive accidents, are a large factor.

ARTIFICIALLY RIPENED FRUIT

THE population of Canada is becoming increasingly dependent, particularly during the winter months, upon imported oranges and other fruits as a source of vitamins. Our fruit stores have imported fruits at all times of the year. These have been picked green to be firm enough to be shipped for long distances. The fruit must appear, if not taste, ripe at its destination; to accomplish this an artificial ripening process is being extensively employed. Whether this fruit can be depended upon as a source of vitamins is a matter of public concern.

Some years ago the orange growers of California found that green oranges could be yellowed by storage for one or two days in a room in which were burning several oil-stoves. Chemists from the U.S. Department of Agriculture investigating this, found that ethylene, a constituent of the fumes from the oil-stoves, was responsible for the yellowing and that fruit could be quickly, artificially ripened by storing for a short time in an atmosphere containing a low concentration of ethylene.

The question as to the vitamin content of ethylene-treated fruit and vegetables has been under investigation in two American laboratories. The published results formed the basis of an editorial in the Journal of the American Medical Association for April 6th, and the salient features are here quoted:—

"House, Nelson and Haber, from the Iowa Agricultural Experiment Station, have made a comparison of the vitamin A, B and C content of green, air-ripened, ethylene-ripened, and vine-ripened tomatoes. They conclude that no difference was apparent in the vitamin B content of these various types of tomatoes. The vitamin A content of ripened tomatoes was found to be greater than that of the green mature fruit, and the same quantity of vitamin A was developed in the tomatoes regardless of the method of ripening employed. Of particular interest to physicians is the vitamin C content for which tomatoes are generally prescribed in a diet. The Iowa workers found green tomatoes to be relatively poor in Vitamin C content; air-ripened and ethylene-ripened tomatoes were richer in this vitamin than the green fruit. On the other hand, the vine-ripened tomatoes were superior in vitamin C content to artificially-ripened fruit or to green tomatoes."

The following recommendation of the above-mentioned editorial can be heartily commended: "Until investigation shows otherwise, the use of vitamin-containing products in as near a 'naturally ripened' condition as possible should be encouraged when used for prophylaxis against avitaminosis."

PUBLIC HEALTH NURSING

RUBY M. SIMPSON, REG.N., AND FLORENCE H. M. EMORY, REG.N.

HEALTH KNOWLEDGE FOR THE MASSES FOSTERED BY GROUP TEACHING

JESSIE L. GOODMAN, Reg.N.

"The best possible results in the least possible time with the material at hand."—*David Lloyd George.*

THE above quotation received from the president of a Home and School Club upon the completion of a course in home nursing has been adopted as a slogan for the operation of classes conducted under the auspices of the Canadian Red Cross Society.

Group teaching undertaken in the home nursing class is given by a graduate nurse. She may be actively engaged in her profession or may be chosen from the ranks of those who have married or from the group of active public health nurses. A local doctor gives two or more of the lecture demonstrations. Topics covered relate to personal and home hygiene and include the bedroom in health and sickness, the signs of sickness, the care of the patient, feeding the sick, treatments, communicable diseases, emergencies and slight ailments, maternity nursing, infant care, the feeding of infants and children and the food needs of adults.

Lessons, preferably one a week, are arranged to meet the convenience of the class. The customary fee of one dollar provides a copy of the Red Cross manual and meets incidental expenses. Group fees may be arranged where necessary, since it is our policy to extend the classes to all persons desirous of enrolling. The class provides the building and the organization supplies necessary equipment. A manual does away with the necessity for note-taking so that the pupil's time is given entirely to theory and practice. At the conclusion of the course an oral test is given and oftentimes a practical demonstration. Pupils attending seventy-five per cent of the lectures receive a card of acknowledgement stating they have attended an elementary course in home nursing under the Canadian Red Cross Society. In Toronto, since 1924, 248 groups have been organized with a total of 4,445 women and girls having completed the course. Three insurance companies have had large classes this year, 50 of their staff availing themselves of an opportunity to remain after five o'clock in order to receive instruction.

A report written by one of Toronto's public health nurses following a visit to a home where the mother had received the benefit of Red Cross instruction in home nursing is significant:—"The value of home nursing classes organized by the Red Cross was forcibly illustrated when visiting a home to-day. In comparing the condition of the room and patient during

previous illness with that of to-day it scarcely seemed possible that the same mother was looking after them. These classes have been held in the comfortable, well kept homes of the district and no doubt this has proved an incentive as there seems to have been an improvement throughout the homes."

As the service of the graduate nurse and physician is voluntary the value of time and energy expended on the preparation and teaching of these lessons cannot be over-estimated. During the recent prevalence of influenza nurses were at a premium. No doubt many of the four thousand women who had completed the course were given an opportunity to test the knowledge gleaned in caring for their own families.

"Service is our destiny in life or death,
Then let it be my choice living to serve the
Living, and be fretted uncomplainingly.
If I can assure myself of doing service
I have my home within."

THE SESSIONS OF THE PUBLIC HEALTH NURSING SECTION OF THE CANADIAN PUBLIC HEALTH ASSOCIATION

ISABEL S. MANSON, Reg.N.

THE meetings in Montreal of the Canadian Public Health Association, June 18th to 21st, held much of interest to nurses, especially to those engaged in public health nursing. Of the papers given by nurses, the first was that on "The County as a Unit of Public Health Nursing" by Miss Ruby E. Hamilton, Director of Field Nursing, Ontario Division of the Canadian Red Cross. Miss Hamilton outlined the organization of health work in England where county health units have long been established. She pointed out that although we in Canada enjoy many natural advantages in health conditions, we have been slow in organizing health work, particularly in the rural parts. The example of England and other places is of great value to us, but Canada must work out the scheme best fitted to meet its own conditions. Some of the provinces have made a beginning in county health organization, but there is need for much greater development to give any adequate health service to the people of small villages and rural areas.

The sixth session of the conference was the meeting of the Public Health Nursing Section. Miss Edith B. Hurley, Professor of Public Health Nursing, Université de Montréal and Chairman of the Section, presided. In opening the meeting, Miss Hurley spoke of the development of the Section since its inception four years ago, and emphasized the difficulties experienced by public health nurses of the Province of Quebec, due to the fact that there is no law compelling prophylactic measures to protect the eyes of the new born infants from infection. The appeal was made that public health nurses use all their influence toward aiding the medical profession to secure this much needed legislation.

Miss Smellie's paper on "The Problem of Securing Recruits for the Public Health Nursing Field", gave prom-

inence to some of the problems facing the administrators in this field.

Beginning with the nurses leaving their schools, it was shown that only seven per cent enter public health nursing during the first year. Although the proportion is somewhat higher later on, the fact remains that the public health nursing field is receiving neither the quantity nor the quality of recruits essential to its best functioning.

Some reasons for this situation advanced by Miss Smellie are:—

1. Little contact of student nurses with public health nursing, and therefore, little knowledge of its scope and opportunities.
2. The cost of special training to the nurse anxious to become self-supporting as soon as possible.
3. Many graduate nurses have not the preliminary education necessary to admit them to the university courses.
4. Rural work, which is so badly in need of nurses, does not appeal to some, and its claims are not sufficiently well presented.

To remedy these defects Miss Smellie suggested:—

1. More intimate relationship between training schools and public health nursing agencies by:
   a. Instruction and class contacts.
   b. Carefully planned and supervised affiliations.
   c. Introduction of supervisors with a public health viewpoint into larger schools.
   d. Bringing before head nurses and alumnae associations recent public health developments and the need for recruits.
   e. The return of public health nurses from time to time to their schools for refresher courses.
2. The raising of entrance requirements by hospital schools of nursing.
3. More scholarships to enable nurses to attend the university courses in public health nursing.
4. Provincial departments of health to aid and strengthen the university courses and assist in securing field work in rural districts for students.
5. Recognition that not all will be able to take the university course and, therefore, provision for regularly admitting new nurses to public health nursing organizations on an instructive basis, and for continuous staff education.
6. In all ways possible to broadcast the information regarding the need and the opportunities in public health nursing in Canada.

A paper on "Some Aspects of Industrial Nursing" was presented by Miss Dorothea MacDermot and a short history of the development of industrial hygiene traced. The question was raised concerning the choice of nurses for industry. Miss MacDermot pointed out that good training is the foundation, but emphasized the all but essential need for experience in a well organized, well supervised public health nursing organization. To fill her position adequately, the industrial nurse must have a public health viewpoint and must know the philanthropic, social and medical agencies of her community.

The programme of the industrial

nurse is not uniform nor at all standardized. In general it includes:—

1. Health supervision of employees in the factory—ventilation, sanitation, lighting, choice of meals, food habits, clothing habits, follow-up after physical examination of employees, and health teaching wherever possible.
2. Health supervision of employees in their homes, visiting of absentees, advising and assisting in case of illness, arranging for hospitalization and convalescence.
3. The home visits to employees give the desired contact with their families and open the way for health supervision of the home and household.

Miss MacDermot stressed the need among industrial nurses for some type of organization. At present each nurse is very much isolated, and there is little opportunity for the experienced worker to pass on what she has learned, or for co-workers to discuss their common problems.

It is hoped in a later issue to print a summary of the helpful contributions of Mlle. Marie Roy and Mlle. Blanche Lecompte.

A GREAT CONGRESS

FLORENCE H. M. EMORY, Reg. N.

THE sixth Congress of the International Council of Nurses, held in Montreal July 8-13, will linger in the memory of seven thousand members of the nursing profession as an undertaking colossal in magnitude and an experience rich in inspiration. The historic setting of Canada's most representative city, the comprehensive and detailed arrangements of the Montreal nurses together with the effective execution of their plans contributed much to the comfort and happiness of those who attended the congress.

The President, Miss Nina Gage, affable as she is able, conducted the meetings with dignity and grace. The general sessions portrayed the distinctive character of the gathering, reflecting as they did the attendance of nurses from thirty-nine countries. Programmes, papers and reports printed in three languages, English, French and German, added much to the discernment of proceedings. Members of the Canadian medical profession making noteworthy and appreciated contributions were Dr. A. T. Bazin, President of the Canadian Medical Association, Dr. J. L. Biggar, National Commissioner, Canadian Red Cross Society and Dr. E. Stanley Ryerson, Secretary of the Faculty of Medicine, University of Toronto.

An impressive feature of one of the early sessions was a roll call responded to by representatives of the affiliated associations of Great Britain, the United States of America, Germany, Canada, Denmark, Finland, Holland, India, New Zealand, Belgium, China, Norway, South Africa, Bulgaria, Cuba, France, the Irish Free State, Poland and by the associate national representatives from Brazil, Estonia, Greece, Iceland, Korea, Latvia, Sweden and Turkey. Progress reports

from Hungary, Palestine, Spain, Syria and Uruguay were received. A cherished experience in the life of every individual is that in which inspiration finds an inevitable climax in exaltation. Such is recalled by those who witnessed the introduction of the newly affiliated national associations of Brazil, Greece, Jugoslavia, Sweden and the Philippines. A few words of introduction from a member of an association already affiliated, a presentation of the national flag, the playing of the national anthem of the country seeking admission and a short address by one representing that country, were at once thrilling and illuminating.

Public health section meetings and round table conferences dealt with such topics as, The Place of Preventive Medicine in the Curriculum of the School for Nurses; The Purpose, Scope and Arrangement of Practical Field Work in the Training Course in Public Health Nursing; The Citizen in Relation to the Public Health Programme; The Study of the Normal Child as a Preparation for Public Health Nursing; Community Organization for Health Work and The Public Health Nurse and Social Work.

One of the most helpful aspects of such a gathering is the opportunity afforded for individual conference and social intercourse. The International Congress proved no exception. An intensified professional loyalty, a sense of unity in purpose and effort, a furtherance of international insight and regard, and renewed inspiration are some of the palpable results of a Congress which shall ever be remembered by those privileged to attend. Nor has anticipation vanished from our professional horizon. With avidity and satisfaction we look forward to the meeting of 1933 when the nurses of France and Belgium will be hostesses, with Mademoiselle Chaptal of France as President of the Congress.

LABORATORY SECTION

G. B. REED, Ph.D., AND A. L. MCNABB, B.V.Sc.

REDUCTASE TEST

DURING recent years there has been considerable discussion as to the merit of the agar plate count for milk samples. After receiving several inquiries at the Laboratories, Department of Health, Ontario, as to the value of the reductase test, it was decided that a direct microscopic count, agar plate count and a reductase test should be done in parallel on milk samples received. The number tested in this laboratory to date is small but the results clearly indicate that whatever preliminary test may be used to determine the bacterial content of milk, it should be confirmed by an agar plate count.

The agar plate count is a familiar test. The technique need not be outlined any more than to say that the routine followed was that of the standard method.

The Breed direct microscopic count was conducted according to standard

methods, using the Newman combined fat extraction, fixing and staining solution.

The formula of the stain is as follows:—

Methylene blue powder (certified) ..... 1 to 1.12 gms.
Ethyl alcohol (95%) ..... 54 cc.
Tetrachlorethane (technical) .... 40 cc.
Acetic acid (glacial) ..... 6 cc.

Directions for mixing:—

1. Add alcohol to the tetrachlorethane in a flask and heat to a temperature not over 70°C. (If methyl alcohol is used, the temperature should not be raised to more than 55°-56°C.)
2. Add the combined solution to the powdered methylene blue.
3. Shake vigorously until the dye is completely dissolved.
4. Cool the solution and add the glacial acetic acid very slowly. Filter and keep in a tightly stoppered bottle.

Directions for use:—

1. Prepare the milk smear.
2. When dry, immerse the smear in the solution and withdraw immediately.
3. Drain until dry (about 30 seconds).
4. Wash in water.
5. Dry and examine.

REDUCTASE TEST

The Reductase Test (Methylene Blue Test) has many advantages, in as much as the technique is simple, little apparatus is required and the results are rapid, and, from our observation, fairly accurate. The test can be conducted by any careful worker as it requires no special technical training. Ellenberger and his coworkers have shown that 87.5 per cent of the reductase tests agree with the agar plate counts when the germ life of the sample is in excess of 1,000,000 per cc. This is an important finding as it enables one to detect milk which has a bacterial count in excess of 1,000,000 million per cc. in 2½ hours by the reductase method.

The methylene blue was made up from the standard tablets by dissolving 1 tablet in 200 cc. of sterile water. A fresh solution was used each day. The test tubes used were the ordinary bacteriological tubes.

A long rack was used for the tubes, so that one could see at a glance any colour change during incubation.

Laboratory numbers corresponding to the milk samples were marked on the tubes used, 1 cc. of the methylene blue solution placed in each, and amounts of 10 cc. of the milk samples transferred by means of sterile pipettes to the respective tubes containing methylene blue solution. The time of mixing was recorded and the rack placed in the 37°C. incubator. The final colour of the specimen before incubation resembles very closely that of a robin's egg. Specimens were examined every 15 minutes and the time recorded when the blue disappeared from any sample.

From our observations we find that milk which reduces methylene blue within 2½ hours has a bacterial count of 1,000,000 to 14,000,000.

One hundred and fifty samples required more than seven hours for complete reduction, the highest plate count of these samples being 260,000. It is necessary to continue these tests to obtain a large enough number of the intermediate time groups to make the test one of quantitative usefulness.

TABLE I.
TIME OF REDUCTION AND THE AGAR PLATE COUNT

Lab. No.	Time Required for Reduction	Plate Count
347		7,600,000
356	*Up to 30 minutes*	6,000,000
357		14,000,000
216	*Between 30 minutes and 60 minutes.*	3,000,000
369	*Between 1 hour and 1½ hours*	3,700,000
371	*Between 1½ hours and 2 hours*	390,000
216		3,300,000
217	*Between 2 hours and 2½ hours*	3,800,000
218		3,200,000
360		1,000,000
375	*Between 2½ hours and 3 hours*	800,000
501	*Between 3 hours and 3½ hours*	100,000
382	*Five hours*	260,000
283	*Six hours*	22,000
854		23,000
855		42,000
856		50,000
108		190,000
109		400,000
150		32,000
151		162,000
152	*More than 7 hours*	30,000
153		17,000
154		43,000
155		234,000
156		102,000
219		120,000
220		160,000

140 other specimens in this class with no appreciable variations from those presented.

RESULTS

The Breed count, or direct microscopic count, offers some difficulties in the practical use of it. The accuracy of the measured film, the evenness with which it dries and the efficiency of the staining process are all important factors which vary the result in the final microscopic count. These are factors which may introduce comparatively large errors. Table II shows a comparison of results obtained with the same samples by the three tests.

TABLE II.
COMPARISON OF MICROSCOPIC COUNT, AGAR PLATE COUNT AND REDUCTASE TEST

Lab. No.	Plate Count	Time Required for Reduction	Direct Microscopic Count
603	14,000		300,000
604	80,000		600,000
605	280,000		1,500,000
606	500,000		900,000
607	100,000		300,000
608	16,000	*Not less than*	150,000
609	9,000	*7 hours*	75,000
610	14,000		150,000
323	40,000		60,000
324	100,000		50,000

So far as our observations go, we are of the opinion that the reductase test is the more suitable from a practical standpoint and that, in the present light of our knowledge on the subject, this test is more useful for field workers or dairymen who have not laboratory facilities. The results should, however, be confirmed by further laboratory tests.

CONCLUSIONS:

1. The reductase test offers advantages in making a rapid analysis of milk samples having a high bacterial count.
2. Theses tests should always be confirmed by an agar plate count.
3. We find that the direct microscopic count is subject to wide variations.

REFERENCES:—*H. B. Ellenberger, M. C. Bond, A. H. Robertson and R. I. Moody, Bulletin 264, Vermont Agri. Exp. Sta.*

EPIDEMIOLOGY AND VITAL STATISTICS

F. W. Jackson, M.D., D.P.H., and Neil E. McKinnon, M.B.

THE MENINGITIS SITUATION

SINCE 1925 the reported incidence of meningococcus meningitis has been definitely greater than previously. In certain sections, as in Chicago, the usual seasonal decline in the summer months did not appear but high rates persisted. The increased incidence, though most marked in certain sections as in Michigan and the Pacific coast, is to a certain extent general over this continent. The condition has been aggravated in California by a great many cases of meningitis among labourers being brought into the country from the Philippines, one ship having as many as twelve deaths on one trip. The table given herewith shows the incidence in the various provinces of Canada in the first six months of 1928 and 1929.

REPORTED CASES OF MENINGITIS, CANADA

Province	January		February		March		April		May		June	
	1928	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928	1929
Nova Scotia	—	5	—	1	—	3	—	—	4	5	—	2
New Brunswick	—	—	—	1	—	1	—	1	1	—	1	—
Quebec	4	4	—	6	3	3	—	9	3	14	—	2
Ontario	2	15	2	10	2	11	2	13	7	10	6	4
Manitoba	—	1	1	—	1	1	—	4	3	—	1	2
Saskatchewan	3	2	—	—	—	—	3	3	—	—	—	1
Alberta	3	1	7	6	1	5	2	14	4	3	2	5
British Columbia	2	4	9	2	1	3	1	2	3	4	—	3
	14	32	19	26	8	27	8	46	25	36	10	19

Our knowledge of the epidemiology of meningitis is largely derived from army studies and is lacking many details in regard to the spread among civilians. Studies among troops where meningitis was epidemic have shown very high rates for carriers—even as high as 30 per cent or over. Epidemics occurred wherever there existed a combination of crowding and carriers, and were controlled by properly spacing out the troops. Just how far the results of these studies are applicable to the civilian population at the present is a question. Though probably applicable in principle, there is a vast difference between the conditions under which the epidemics occur in military and civilian life and it is necessary to collect many data to appraise the influence of the varying conditions.

The first essential in the necessary investigation is laboratory confirmation of each case. A diagnosis of meningococcus meningitis is definite only when the meningococcus has been isolated from the spinal fluid. A lumbar puncture is therefore the first requisite—and it is the first requisite not only for diagnosis but for treatment. Secondly comes the detection of carriers. This is necessary not only as a means of control but to get information of the means of spread, the

number of carriers among contacts and in the general population, etc. The vacuum jar, in which culture media may be kept at incubator temperature for some time, has overcome much of the difficulty involved in the cultivation of the organisms.

This high incidence of meningitis should broaden our knowledge very considerably in regard to its epidemiology.

REPORTED CASES OF CERTAIN COMMUNICABLE DISEASES IN CANADA* BY PROVINCES—JUNE, 1929

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
Diphtheria....	8	6	170	239	50	39	77	53
Scarlet Fever..	60	57	420	446	102	73	178	28
Measles.....	69	118	346	3077	395	496	268	923
Whooping Cough.....	10	1	82	550	125	119	30	22
German Measles.....	—	—	73	36	†	15	12	7
Mumps.....	—	—	153	463	177	114	99	418
Smallpox.....	—	—	12	87	9	10	13	25
Cerebrospinal Meningitis..	2	—	2	4	2	1	5	3
Anterior Poliomyelitis	—	—	—	2	1	—	1	1
Typhoid Fever	—	9	39	66	8	7	14	7

*Data furnished by the Dominion Bureau of Statistics, Ottawa.
†Not reportable.

NATIONAL VOLUNTARY HEALTH AGENCIES

RUBY E. HAMILTON, Reg.N.

ANNUAL MEETING OF CENTRAL COUNCIL, CANADIAN RED CROSS SOCIETY

"We meet to pay tribute to the achievements of the Red Cross not only for its ministrations in war, but also for its important contribution to the upbuilding of our national life in time of peace."

W. L. Mackenzie King,
Prime Minister of Canada.

For the first time in the history of the Red Cross in Canada the Annual Meeting of the Central Council was held in Ottawa. This was only the second occasion that the Central Council has met elsewhere than in Toronto, the first having occurred in 1922 when the meeting was held in Winnipeg.

The outstanding feature of the meeting was the presence of Her Excellency The Viscountess Willingdon, who presided at the luncheon which was attended by the Prime Minister and several members of the Cabinet, together with the Diplomatic Corps. Her Excellency also was present at a session of the Council and evinced

great interest in the reports which were presented. As she said at the luncheon, Red Cross has always been an activity which has lain close to her heart, and she was glad to see that in Canada it was furnishing such an invaluable service to the people of the Dominion.

The report on the work of the Society in 1928, which was presented by the National Commissioner on behalf of the Executive Committee, indicated that the Society was in a stronger and more vigorous condition than at any time since the War. The report stated that though the total expenditures on Red Cross work in Canada continued to be greater than the total revenues, the amount of capital disbursements had been smaller last year than ever before, and that the indications were that before long the Society would balance its annual budget. Reference was also made to the 53 new Branches organized and the 52 inactive Branches reorganized during the year, making a total of 433 centres in which Red Cross work was being actively prosecuted.

Those present at the meeting were impressed by the statement, which had been prepared and printed at the suggestion of the Chairman, describing briefly the magnitude of the work of the Society since the War. This statement was distributed to the guests at the luncheon and evoked many favorable comments from those who had previously been unaware of the extent of Red Cross service. It is hoped that the summary will be available for distribution to any who would be interested in the information it provides.

The Prime Minister referred also to the opportunity afforded by the Society to every citizen to exercise qualities of benevolence and philanthropy which are the noblest attributes of mankind, and emphasized his conviction that the Red Cross would never ask in vain for the financial support it needed for its work.

ANNUAL MEETING OF CANADIAN SOCIAL HYGIENE COUNCIL

THE Annual Meeting of the Canadian Social Hygiene Council was held at the Windsor Hotel, Montreal, on June 21st, at the same time as the meeting of the Canadian Medical Association and the Canadian Public Health Association.

At the morning session which was presided over by Dr. N. MacL. Harris, Dr. A. Grant Fleming gave an excellent paper showing the urgent need for widespread and thorough public education on the question of communicable diseases and their control.

Following this paper Dr. J. H. Holbrook, Superintendent of the Mountain Sanitarium at Hamilton, discussed problems in medical organization having to do with the control of preventable disease. He urged that the state should make provision for a service which would include both specialists and well equipped clinics available to all at a reasonable cost.

Dr. Gordon Bates, General Secre-

tary of the Canadian Social Hygiene Council, gave a paper summing up the results achieved in recent years in venereal disease control. He stated in the course of his paper that he "always found it difficult to find a reason why a dangerous disease, such as venereal disease, should be less under control of the health authorities than are communicable diseases of a milder and less widespread type".

At the afternoon session, presided over by Mr. A. O. Dawson, the reports of standing committees were received and the following is a brief summary of some of the discussion which took place:

The drastic measure of separating the sexes after they have reached the age of ten years in public and high schools, and perhaps even later in the institutions of higher learning and the universities, was recommended by the standing committee on venereal disease. The object behind this proposal is the control of gonorrhoea, which, it was stated, has increased very much within the past few years among adolescents and adults under 20 years of age. Objection was taken to this, however, on the grounds that co-education, as the great educator, Froebel, pointed out, had many fine things to offer the youth of the country. The recommendation was, accordingly, forwarded without adoption for the consideration of the incoming executive.

Another question on which the meeting split was the matter of the prevention of venereal disease. Prophylaxis would prove more effective than spiritual guidance in ridding the country of this disease, Dr. C. P. Fenwick, of Toronto, stated. "We talk about immunizing people against typhoid and scarlet fever, and as long as we are content to leave venereal disease to the spiritual administrators we are not doing our full duty." Dr. A. H. Desloges, Director of the Division of Venereal Disease for the Province of Quebec, differed strongly from Dr. Fenwick, stating that prophylaxis was a dangerous doctrine, which would only encourage sexual laxity. Dr. Gordon Bates gave the last word on the question by stating that so highly controversial a subject could hardly be taken as one of the platforms of the Council. Another objection to its adoption was that it would antagonize the governments on whom they were depending for support.

Resolutions and recommendations were adopted regarding the treatment of drug addicts; the prevention of blindness from gonorrhoeal infection at birth through the enactment of laws by each province making the proper prophylactic measures compulsory.

The resolution concerning medical examination before marriage was as follows: "That we approve the principle of medical examination before marriage; that legislation as at present proposed should not be passed unless and until preceded by an adequate period of public education; that public education as to the desirability of medical examination before marriage should be undertaken."

The financial statement showed expenditures amounting to $37,843, revenue of $37,148, and a deficit of $694. Assets amounted to $15,216.

NEWS AND COMMENTS

P. A. T. SNEATH, M.D., D.P.H.

Nova Scotia

A COMPLIMENTARY dinner was tendered by the profession in Halifax to Dr. George Stewart on the occasion of the Dalhousie Convocation.

On the suggestion of Dr. Haywood, Superintendent of the Montreal General Hospital, and Mr. Galbraith of Toronto Western Hospital, who recently made a survey of the Aberdeen Hospital, New Glasgow, the X-ray films were moved to an adjoining building. The full report of Dr. Haywood and Mr. Galbraith is to be received later.

Digby Hospital was recently the recipient of a $5,000 endowment through the generosity of Dr. I. M. Lovitt.

The question of an increase in the rates charged to patients of the Nova Scotia Sanitarium has aroused considerable opposition and has already elicited a memorial in protest from the patients. The imposition of the proposed increase has consequently been postponed and it is hoped that some other means of financing the institution will evolve in the meantime. The feeling of the people throughout the Province is in favour of a decrease rather than an increase in the rates.

The Nova Scotia Medical Health Officers' Association met in Halifax on June 25th, in association with the Nova Scotia Medical Society.

New Brunswick

AT the conference of the Catholic Hospitals Association of the Maritimes held in Moncton on June 4th, Dr. H. L. Abramson of the Department of Health spoke on the Relationships of Pathological and Bacteriological Laboratory Work to Hospitals. There was a large attendance of nurses, physicians and clergy.

Dr. Mabel Hanington of Saint John attended the Convention of the National Council of Women in Saskatoon on May 28th, where she delivered a lecture on Mental Hygiene.

Dr. G. G. Melvin, Chief Medical Health Officer, Dr. William Warwick, District Medical Health Officer for the Saint John Division and Dr. F. J. Desmond, District Medical Health Officer, Newcastle, attended the meetings of the Canadian Public Health Association in Montreal in June. Dr. Warwick presented a very valuable paper on the Use of Convalescent Serum in the Control of Measles.

The plans for the addition to the City Hospital of Moncton have been approved and the guarantee of the bonds accepted by the City Council.

Quebec

DR. J. C. Beaudet, Dr. A. R. Foley and Dr. G. Gregoire have returned from Tennessee and will now complete their training for directorship of county units at the Beauce

County Unit, the first unit established in the Province.

Work has started on the one hundred bed addition to the Lake Edward Sanatorium, and plans are being formulated for large additions to the Montreal General and Western Hospitals.

The Government of the Province tendered a luncheon to the members of the Canadian Public Health Association at their recent meeting in Montreal. Dr. Alphonse Lessard, Director of the Provincial Bureau of Health, representing the Government, extended a hearty welcome to the visiting members. Dr. Norman MacL. Harris, President of the Association, and the Honourable Doctor Forbes Godfrey, Minister of Health and Labour in the Government of the Province of Ontario, expressed the appreciation of the Association.

Dr. L. R. Vezina, Director of the Sanitary Unit of Terrebone County, presented a paper on Les Unités Sanitaires de Comtés dans la Province de Québec. Dr. Emile Nadeau, Assistant Director of the Provincial Bureau gave a very interesting retrospective study of public health in Quebec in the past twenty-five years.

Ontario

A LARGE representation from the Department of Health attended the meetings of the Canadian Public Health Association and the Canadian Medical Association in Montreal. Among these were Hon. Dr. Forbes Godfrey, Dr. W. J. Bell, Dr. A. L. McKay, Dr. A. McNabb, Dr. J. G. Cunningham, Dr. P. Moloney, Dr. H. W. Johnston, Dr. D. A. McClenahan, Dr. N. H. Sutton.

Dr. J. G. FitzGerald, Dr. R. D. Defries, Dr. Donald T. Fraser, Miss Mary Ross and Dr. E. W. McHenry also went from the School of Hygiene, Toronto, and Dr. Gordon Bates and Dr. C. P. Fenwick from the Social Hygiene Council, Toronto. Dr. J. W. Fraser of Kitchener attended the meetings and presented a paper on the Correction of Defects in Pre-School Children.

An intensive investigation is being made by the Department of Health in conjunction with the School of Hygiene, University of Toronto, into the outbreak of food poisoning which occurred in Bowmanville on June 14th, and in Maple Grove, about 2 miles from Bowmanville, on June 17th. The source of the first epidemic is thought to have been milk, while cheese is blamed for the second outbreak.

A few cases of infectious jaundice are reported to have occurred recently in the vicinity of Orono. The original source has not yet been located.

The Provincial Department of Health are now prepared to supply convalescent serum for treatment in the preparalytic stage of poliomyelitis. As only a very limited supply is available, it can only be supplied for cases where the diagnosis is reasonably assured. This is directly under the supervision of Dr. A. L. McKay, Provincial Epidemiologist.

The following extract from the report of the Committee on Public Health Relations of the Academy of

Medicine, Toronto, is taken from the annual report of the Academy recently published. It is of more than local interest.

New forms have been drawn up and approved by both the Academy of Medicine and the Department of Public Health for use in the child welfare centres. Contact has been established by the Academy of Medicine with the Home and School and Child Welfare Councils and the Academy is endeavouring to aid them in their propaganda in regard to the claims for better care of the pre-school child. In doing this, however, care is being taken to see that the rights of the general practitioner are not infringed upon since it was soon found that these enthusiastic and useful organizations in their endeavour to do good to one section of the community were somewhat inclined to overlook the just claims of another and important section of the community, namely, the family physician. Your Committee have every hope that these difficulties will be overcome and have undertaken to provide speakers, addresses, etc., for the use of the Child Welfare Council in their propaganda amongst the members of various organizations in this city.

Again your committee would like to urge upon the private physician the necessity of his co-operation in this matter and seek in every way to educate his own patients as to the necessity of periodic examination for all members of a family.

Also we urge the keeping of records of all patients and hope soon to present for your consideration a simple history form which will be of assistance in this most necessary phase of a practitioner's work, not only from the standpoint of reference, but of research.

May we as a committee urge again your co-operation in these matters so that while we protect the rights of the practitioner and see that there is no sudden and unnecessary invasion of these rights, we, as a profession, do not lag behind in the procession of progressive scientific medicine."

The American Waterworks Association Convention was held at the Royal York Hotel, Toronto, June 24th to 28th, and was a decided success, there being an attendance of more than twelve hundred. Excellent papers were presented and the visiting engineers were taken to places of interest, including the Island Filtration Plant. A fine exhibition of machinery, displayed by the firms making waterworks equipment, chlorinators, etc. added much to the practical value of the convention.

The Provincial Department of Education with the co-operation of the Provincial Department of Health of Ontario, is holding an intensive Course for School Nurses of five weeks duration. The Course is primarily for the purpose of training graduate nurses registered in Ontario, for service as school nurses in Ontario, but as this is the only course of its kind held anywhere in Canada, nurses interested in this field of health service in other provinces are to be found among the forty-six registrants. The sessions of the Course are held, this year, in the School of Hygiene of the University of Toronto.

Manitoba

WE congratulate Dr. A. J. Douglas, Medical Officer of Health, Winnipeg, who has been elected President of the Canadian Public Health Association for the year 1930.

As a sequel to the serious outbreak of typhoid fever and some cases of smallpox in camps in the northern part of the Province on the Hudson Bay Railway, legislation was introduced at the recent session of the Legislative Assembly providing for licensing and regulation of private hospitals, and for compulsory vaccination and anti-typhoid inoculation.

Dr. M. S. Fraser, Chief Inspector of Hospitals, attended the meetings of the Canadian Public Health Association in Montreal in June.

Saskatchewan

DR. Arthur Wilson, Medical Officer of Health, Saskatoon and R. H. Murray, C.E., Director of the Division of Sanitary Engineering of the Provincial Department, attended the meetings of the Canadian Public Health Association in Montreal in June.

The Department of Health has undertaken an investigation of diphtheria deaths in the Province. A questionnaire has been prepared accordingly and the physician in attendance at a diphtheria death is requested to answer the questions.

At the recent meetings of the National Council of Women in Regina, the questions of venereal disease free treatment clinics, compulsory examination before marriage, and sterilization of the mentally defective were discussed. Dr. Murray Thompson and Dr. Edna Guest of Toronto and Dr. Mabel Hanington of Saint John, New Brunswick, contributed much to the meetings.

Alberta

THE Council of the College of Physicians and Surgeons has placed itself on record as favouring the immediate appointment of local medical officers of health in all districts, organized and unorganized, where no health officer has been appointed already. The Council points out that this is provided for by law and that communicable diseases would be controlled much more efficiently if every district were under the supervision of a health officer.

The Government has under consideration at the present time the proposal of the Council of the College of Physicians and Surgeons that the medical profession should undertake the work done by the Government Travelling Tonsil Clinic, the patient to pay as heretofore the sum of $15.00, the operation to be performed in hospitals under proper conditions, the Government to be responsible for hospital and anaesthetist fees.

The Council has also suggested that the Government should make provision for the care of psychopathic cases. This is being given immediate attention.

British Columbia

RICHARD Felton, M.D., D.P.H., has been appointed Medical Officer of Health of the City of Victoria. The City and Dr. Felton are to be congratulated.

BOOK REVIEWS

D. T. FRASER, B.A., M.B., D.P.H. and R. R. MCCLENAHAN, B.A., M.B., D.P.H.

The Story of Modern Preventive Medicine—*By Sir Arthur Newsholme, K.C.B., M.D., F.R.C.P., Baltimore: Williams and Wilkins,* 1929. 295 *pp. Price,* $4.00.

This volume is essentially the counterpart of "The Evolution of Preventive Medicine." In the latter is traced the growth of the idea of prevention of disease, slowly formulated and largely acquired by the process of trial and error. In addition the fundamental discoveries of physiology and to a limited extent pathology are portrayed. In The Story of Modern Preventive Medicine the progress since the time of Pasteur is outlined. This task, in some regards more formidable than the first, demands a selection from a mass of material and results inevitably in an emphasis upon certain phases of the subject. The book of some 300 pages is divided into three parts: The Prevention of Specific Diseases; Some Physical and Social Conditions of Health; and Some Physiological Conditions of Health.

There is no question that there is a great need for such a book as that of Sir Arthur Newsholme. In the teaching of preventive medicine there is no more forceful and vital way of approach. For that reason the book is useful as a subsidiary text and can be unhesitatingly recommended. However, the spirit of romance is definitely presenting the subject matter dealt with in this book than by an historical lacking in the pages of this "sketch". I doubt if it would be read with any sense of pleasure by the intelligent layman. It is unfortunate that not a few mistakes have passed unnoticed by the publishers and others by the author. There is no necessity in such a book for giving a detailed account of the Schick test, but the description given is, as I interpret it, a misstatement of fact. Again, if mention is made of scarlet fever convalescent serum there is also a place for scarlet fever antitoxin from the horse, and also for poliomyelitis convalescent serum. Certain names are misspelled; Laidlaw and Kendall, Kitasato and Yersin were not associated in the discovery of Bacillus anthracis as is implied in the text. The references to other parts of the book and to the Evolution of Preventive Medicine rather detract from the appearance of the text and tire the reader unnecessarily. The style is pleasing and the make up excellent. Altogether it is a useful book.

D. T. Fraser.

Health Science and Health Education—*By W. Alfred Buice,—John Wiley & Sons, New York,* 1929. *pp.* 345, *price* $3.00.

The preface explains the book. As the author states, it has grown out of a course taught in the State teachers' college and university during the past ten years. Although it consists chiefly of personal, home and com-

munity hygiene, it embraces considerably more than hygiene. Further, the eight motives which actuated the writing of the text are stated, some of which are,—to pitch the teaching of hygiene upon a simple epidemiological and bacteriological basis; to make health science an objective study; to present personal, home and community hygiene woven together in a single mass of subject matter; to place special emphasis on the science of building up body resistance to common infections; to make foods, nutrition and the method of formulating a balanced diet for oneself an outstanding feature; to serve as a scientific basis for teachers. The author has set himself a Herculean task. One is tempted to ask, can it be done? A point stressed in the book is to impart to the college student sufficient information in the "principles of health science that he may be enabled to evaluate for himself matters of secondary importance and of primary importance." The book is divided into four parts: common preventable diseases and how they are prevented; promotion of personal efficiency—physical, mental and emotional; community health; projects in personal health, laboratory and field exercises. The first part contains much information logically arranged and attractively presented. The illustrations are good. It is unfortunate that a number of mistakes have not been corrected either by the author or publisher. Schick appears twice as Shick; Shelley could hardly have died of tuberculosis when the evidence of drowning is sufficient to satisfy the most critical; the calf is not "inoculated with smallpox virus from the pustules of a patient." It it difficult to understand how proof readers or publisher could countenance some of the English appearing in the text—"compulsory vaccination was had in the civilian population, too". It is interesting to note, in contrast to many similar books, that the chapter on reproduction and sex hygiene explains in a straightforward manner not only reproduction in plants and animals, but also in man. The illustration of human monsters is perhaps unnecessary, but that is purely a matter of individual choice. The eighty-seven exercises outlined constitute also a striking departure from conventional text books. The carrying out of these by the student, coupled with intelligent teaching, should stimulate keen interest and serve as an excellent training for teachers. No one should complain of the amount of information in this book, unless on the score of too much rather than too little.

D. T. Fraser.

CURRENT HEALTH LITERATURE

D. T. FRASER, B.A., M.B., D.P.H.

Distribution of Endemic Goitre in the United States—*Olesen, Surgeon, U.S.P.H. Service. Public Health Reports, Vol. 44, No. 25, June,* 1929.

Prior to the World War no information concerning the nation-wide distribution of goitre was available. Olesen has gathered the data concerning endemic goitre obtained by means of "thyroid surveys" throughout the United States. The compilation of such information has added appreciably to the knowledge of this important public health problem. Despite the handicaps and the obvious obstacles, presented by the draft examinations, which militated against uniformity and accuracy, certain facts have been established as to the incidence of endemic goitre in 2½ millions of men of military age. Generally speaking, there is a greater frequency of endemic goitre in the Pacific Northwest and the Great Lakes Basin. Further, simple goitre was most frequent (13.0 per 1,000) among men coming from sparsely settled districts; it was next most frequent among men living in mountainous districts; and it was rarest among those from agricultural and maritime sections of the country. Independent thyroid surveys carried out subsequent to the War have largely confirmed the finding of the draft examinations. In addition, the finding of the affection in hitherto unsuspected districts is noteworthy. The tabulation of the incidence of goitre, the sex, and numbers examined in forty-three states is presented. The author points out that such surveys are useful in locating existing goitres and making available appropriate treatment for their alleviation. Furthermore, such data will be useful in encouraging the application of prophylactic measures where they are most needed.

Survival of the Virus of Poliomyelitis for Eight Years in Glycerol.—*Rhoads, J. Exp. Med., Vol. XLIX, April* 1, 1929.

Successful transmission of poliomyelitis material kept for six years in glycerol has been previously (1917) reported by Flexner and Amos. In those experiments there was evidence of reduction of activity of the virus. In Rhoads' experiments, on the other hand, the virus maintained its maximal potency after glycerolation for eight years. This fact seems to indicate the improbability of streptococci as the cause of the disease. Cultures made from the material before incubation showed no growth. The remarkable persistence of active virus outside the body in glycerol may indicate an ability to withstand untoward conditions in nature and thus may have an important bearing on the epidemiology of poliomyelitis.